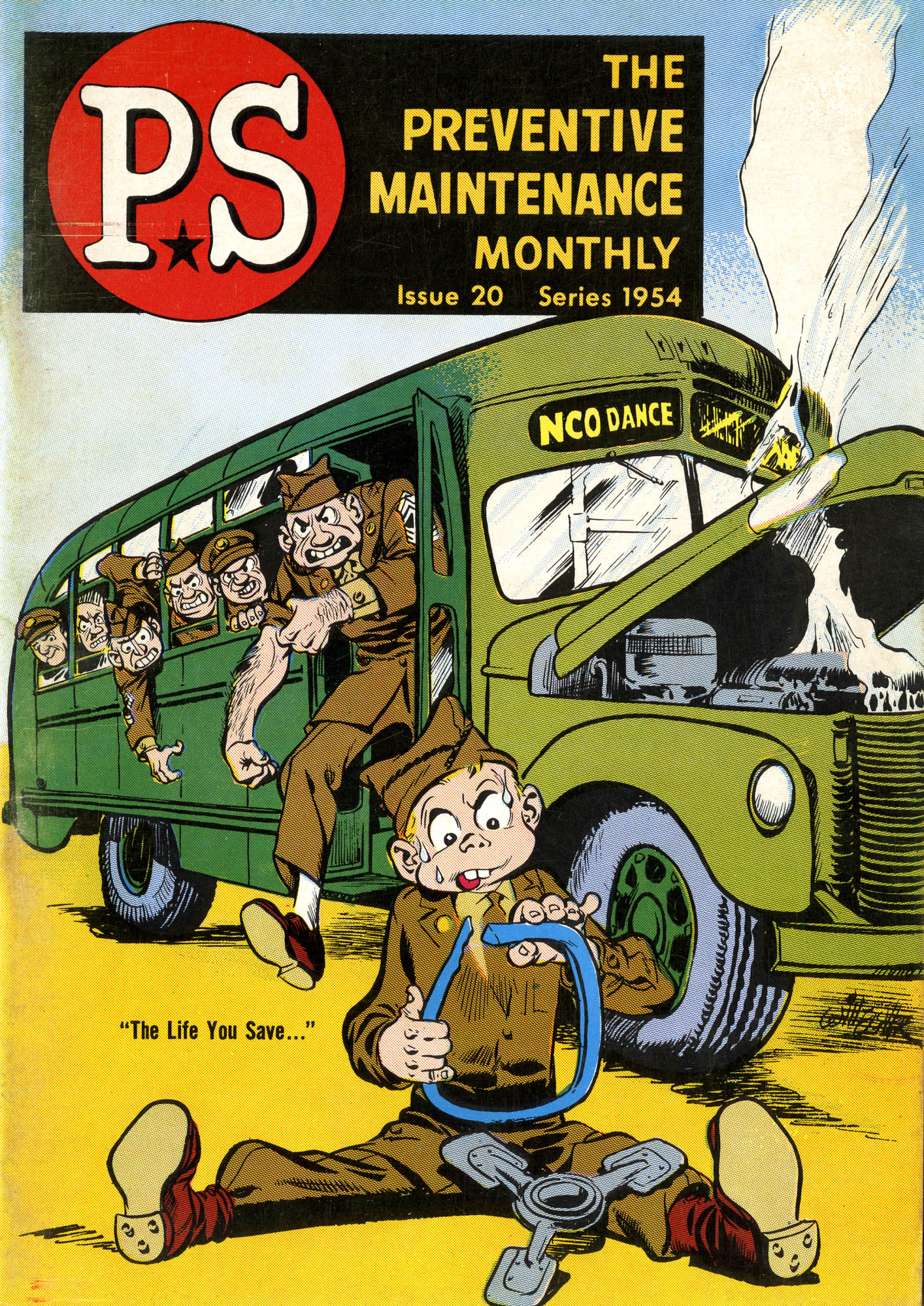
# PS

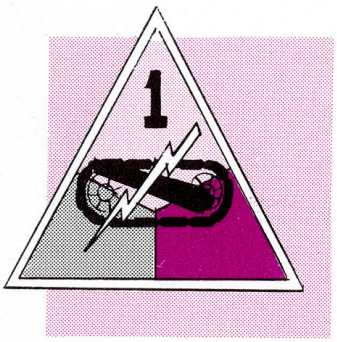
# THE PREVENTIVE MAINTENANCE MONTHLY

Issue 20 Series 1954




"The Life You Save..."

# IN DRIVER TRAINING, IT'S —




First driver, that is.

The First Armored Division at Fort Hood, deep in the Heart of Texas, has a contest to find the best driver each month. Each platoon picks its own best man. The company then chooses a winner and sends him to battalion. Battalion champs go to the major command. The Division winner is chosen by a committee of judges representing the Division Commander, Ordnance, Provost Marshal and others appointed by the Commanding General.

Vehicles are judged with the drivers, who must be the assigned driver for the vehicle. To even things out, they are judged by weight groups. One month he is chosen from the under-2 ½-ton group. Next month the 2 ½-ton and heavier vehicle drivers are judged, and finally the tracked vehicle drivers.

Here's what they are judged on: Condition of vehicle—(Clean, lubricated, top mechanical condition.)
Driver's record—(**No** Delinquency Reports.)
Vehicle records—(Trip tickets, inspection and scheduled maintenance forms, accident report form, manuals and lube order in place.)
Physical examination of the driver.
Written examination on laws and safety.
Practical driving test.

What's in it for the driver? Well, he gets a $15 prize, a three-day pass, and the Commanding General presents him with a "Driver PM Award" pennant which he flies on his vehicle for the next 30 days.

This pennant is not one of the decorations which, with two-bits added, will get you a quarter cigar. It makes him a "Real Wheel" at Fort Hood. MP's give the pennant the right-of-way through intersections whenever possible. Best of all, it gets the happy owner right on through the spot-check inspection teams. And, in case he likes it, he gets a considerable flap from the Armored Sentinel (the post newspaper), the Daily Bulletin and his hometown newspaper.

Now, what's in it for the post? With all the men bucking for that three-day pass with spending money laid on, there are lots of shiny vehicles running around. Everyone is maintaining like crazy trying to show up the next company, platoon, battalion or what have you. How can the division lose? It gets all kinds of extra maintenance effort without using a club. It's a natural—everybody wins.

Why not try it at your place?

# IN DRIVER TRAINING, IT'S — FIRST OF THE 1st

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# FIRST OF THE 1st

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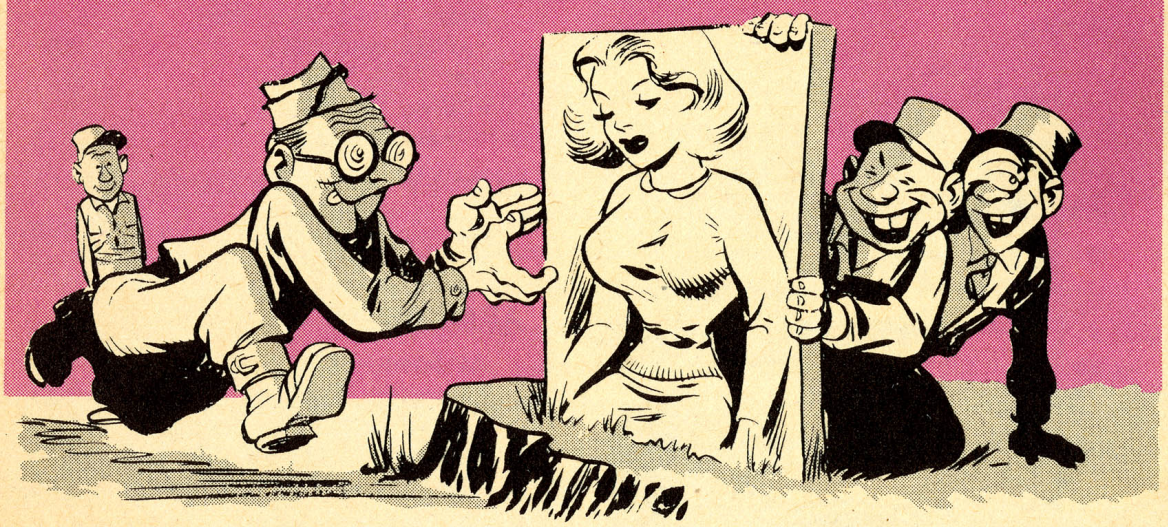
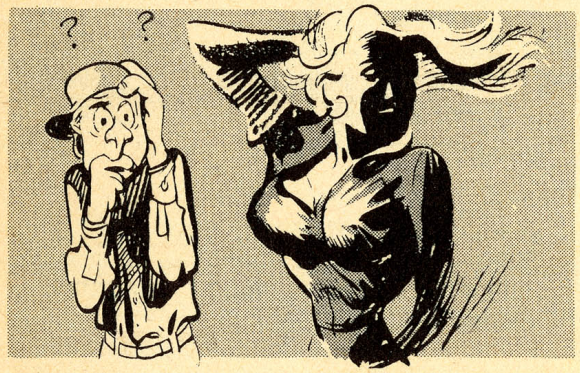
# DON'T "BLIND-DATE" THE M34 AND M35 TRUCKS

(Be "from Missouri"...and see for yourself
—even new stuff needs checking and adjusting.)

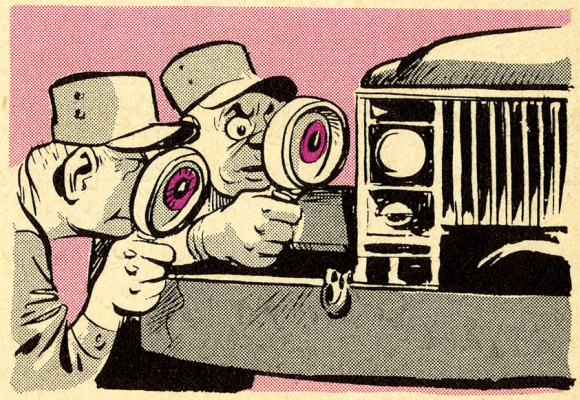


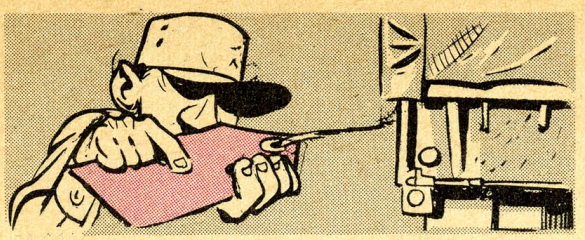
Say you've got a spanking new M34 or M35. Even though she's new, taking it for granted everything's in good order is like believing every sweater girl is real... sometimes they are and sometimes they stretch a point.



When you get a vehicle from the maker, you've got some work to do on it. You—the **driver** and the unit mechanic—you're the team that's so important to get and keep 'er rolling.

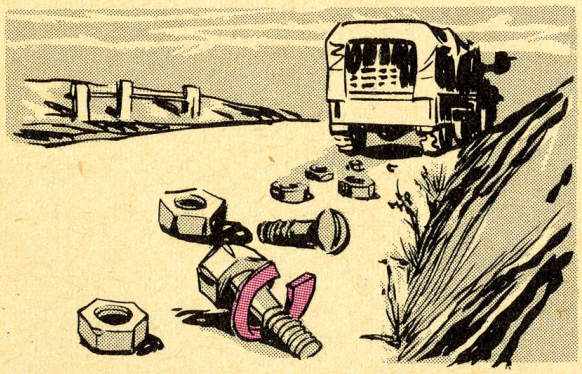
Here's a rundown on what the experts say ought to be done to it right off the bat (your truck, that is). Some of the things you do yourself, some of the things you just check to make sure they've been done before you got the truck. Remember: If something happens, it may have been someone else's boner, but it comes back on your weary feet if you have to leave your hack and walk home.





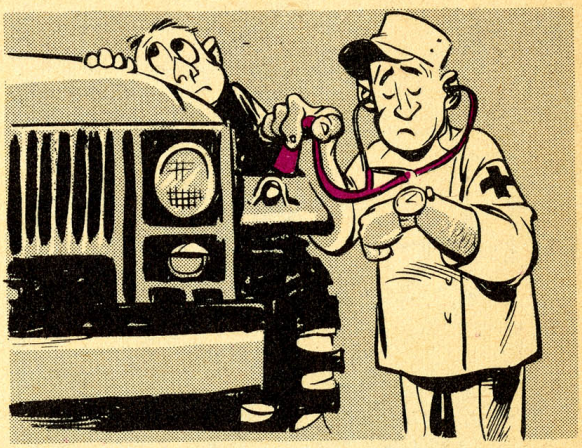
First, check the processing tag on the engine or vehicle, and if it says the engine contains preservative oil that is suitable for 500 miles of operation and it's the right seasonal grade, check it—but don't change it.

Check your buggy carefully to see that everything is in place. It'll also be well worth your time to give her a grease job and hit the hard-to-get-at fittings that might have been missed. If you get too much grease on any part, wipe off the excess.

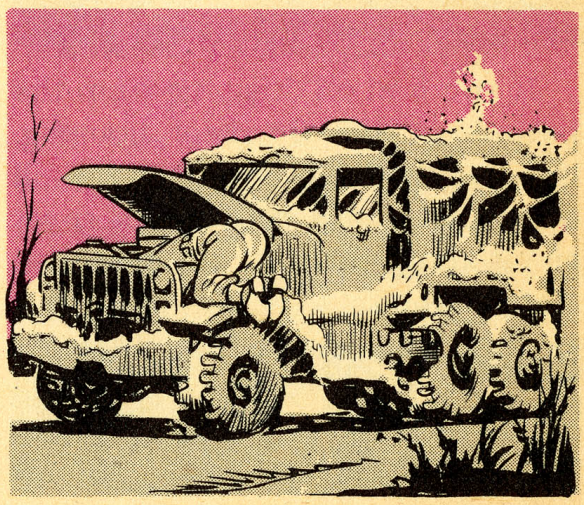


Look for any possible missing grease fittings and keep your eyes open for loose or unsafetied bolts. The production boys do a good job, and the truck has had a complete inspection before you received her, but it's now **your** truck and if any trouble develops, it's **your** baby. So —go over her yourself with a fine-tooth comb. When you're satisfied that all's in good order, take her out on the job and give her every break.

The first 1000-mile inspection is the most important one the truck'll ever get. Any looseness or potential trouble is due to show then, and things you correct here are not likely to trouble you again.

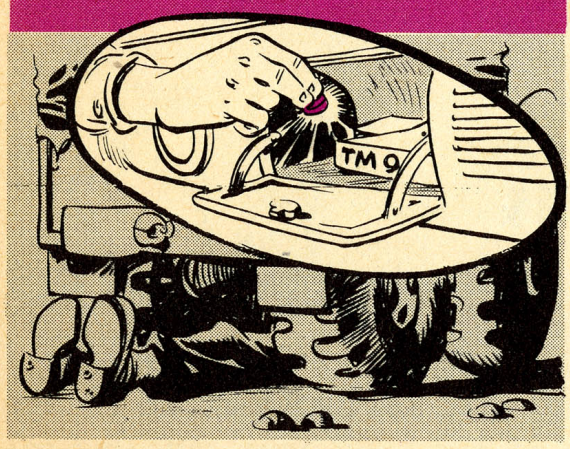


Since you are particularly interested in catching leaks in the oil and hydraulic lines, pull this inspection on a dust-covered truck. Oil leaks and seeps show up better then. Look for signs of leaks around the oil filter, fuel pump, valve cover and pan. Check the air compressor for any leaks and check the compressor belt for adjustment according to page 247, TM 9-819 (Jan 52).

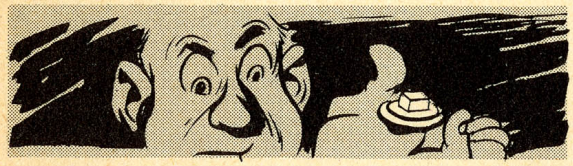


Examine the entire brake system for leakage from lines or cylinders. Check the level of the brake fluid in the master cylinder.

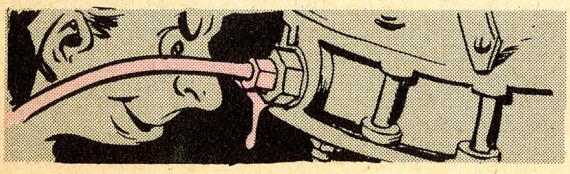
**Be sure to remove the drain-plug from the flywheel housing and put it in the glove compartment.**



Effective with Vehicle Serial No. 127355 (15 Oct 53) a blind tapped boss was added to the flywheel housing for stowage of the drain plug. Later models have a threaded hole in the frame near the bell housing to screw in this gadget.

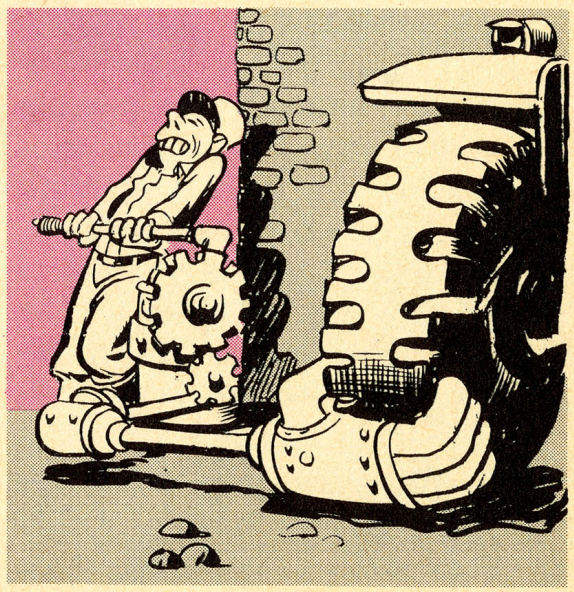


If you find oil dripping from the bottom of the flywheel housing, look for the leaks in either the oil filter, fuel pump, rocker-arm cover or air compressor, or an overfilled transmission.

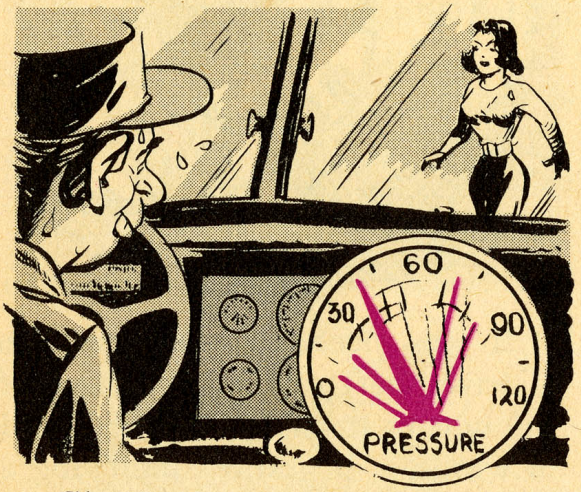


Tighten the wheel nuts and the axle-flange bolts. Check for loose nuts everywhere on the truck—steering gear and vibration damper attaching-bolts are most critical.

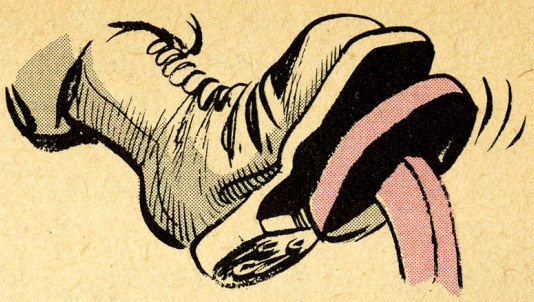
While thinking of steering, you mechanics should check the angle of the front wheels when fully turned, and toe-in. The angle shouldn't be over 28° (plus or minus 1°), and toe-in should be 1/16″ to 1/8″. Toe-in adjustment is your job, and the turning angle is handled by Ordnance.



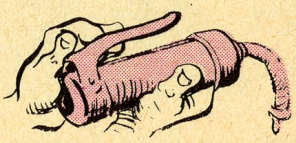
The mechanic resets valve tappets to 15-thousandths, with the engine at operating temperature, and sees that the cylinder-head bolts are torqued at 115 ft lbs—recheck valves after torquing heads. Then he looks at the fan and generator belts and adjusts, if needed (per pages 145-146, TM 9-819).



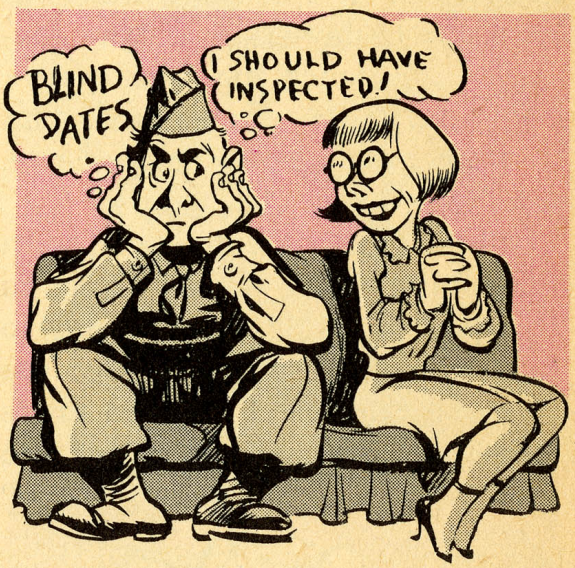

Check air-compressor governor. Air shouldn't build up past 110 lbs and there should be no leaks in the air system. Watch the gage—if pressure falls rapidly, you've got leaks.



Check the clutch pedal free-travel—it should be as per page 124, TM 9-819. Check the oil level in the engine air cleaner—bring it up to snuff.

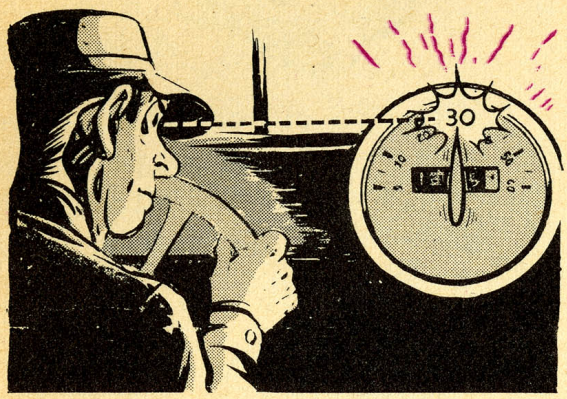


Give the truck a complete lube job—yes, again—see LO 9-819.




It does sound kind of silly to be doing all this inspecting and adjusting on a brand-new truck, but believe it, the more you do now the less you'll have to do later. Besides, almost all of these items will be okay, but it's the ones that aren't just right that we're after. They're the jokers that cause headaches.

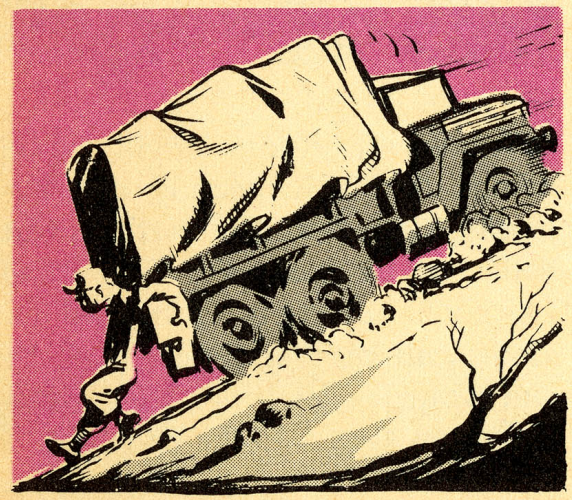
This inspection carries you up to the 1000-mile point. There you can have the throttle stop taken out of the carburetor and the governor checked for 3550 to 3600-

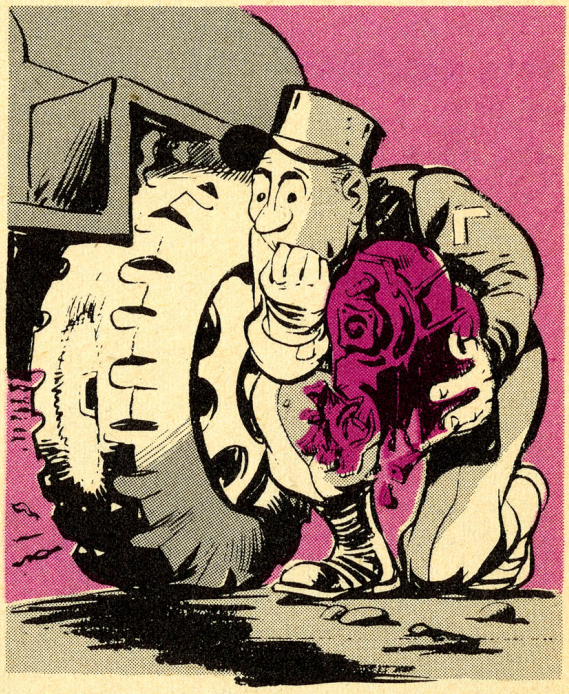



maximum-engine-rpm (no load). Be sure this is done by someone authorized to break the seals. An easy day-to-day check on the governor is to watch the speedometer when shifting. If you get more than 24-mph in third gear, high range, take it in to be checked.

These trucks are equipped with automatic front wheel drive, so there's a couple of precautions to take. If you ever have to let the truck drift or coast backward, make sure the transmission is shifted into reverse. And if you ever let it coast forward, make sure it's not in reverse.

Since the transfer-case shift is linked to the main shift, the shift must agree with the truck's direction of motion or wind-up will result in the drive shafts. Forward wind-up causes hard steering and rearward wind-up causes the transmission shift-lever to jump out of reverse position if you try to use it. Too much wind-up will wear tires excessively and tear up the transfer case.

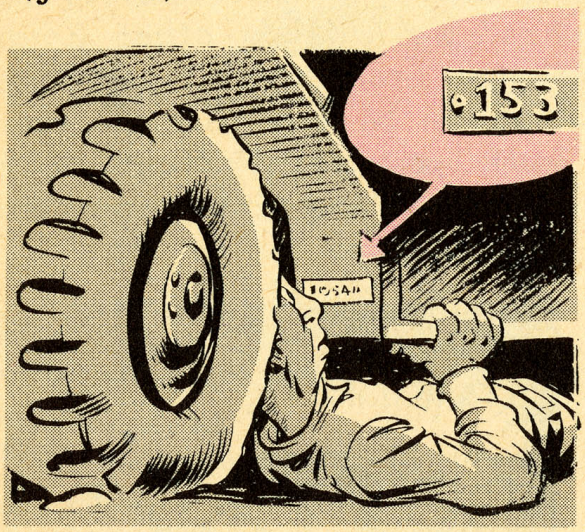




If you mechanics have to take a drive shaft out, jack up one of the wheels it serves first to get rid of wind-up. If you try removing a shaft when there's any wind-up in it, she'll clobber you—but good.

While all trucks below Serial No. 90475, which came out with the single-sprag clutch, are being modi-

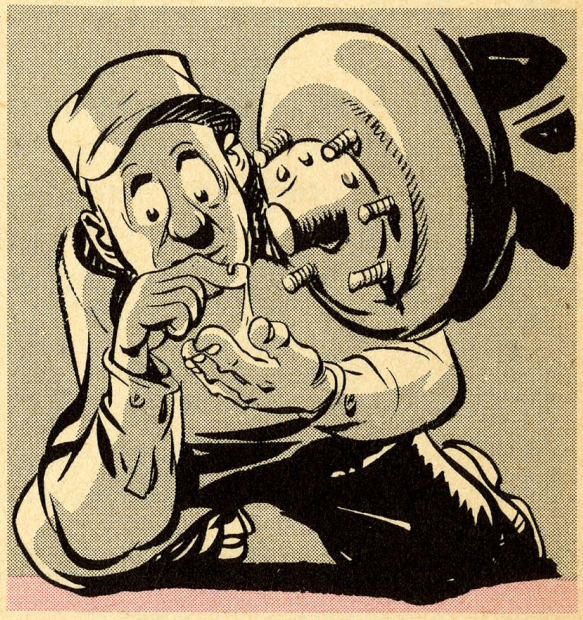
fied to the double-sprag type, some are still in use. So—check the serial number (left frame rail, under the front fender, also on the dash) and then look at the transfer linkage. Compare it to the illustrations on pages 171-172 of TM 9-819 (Jan. 52).

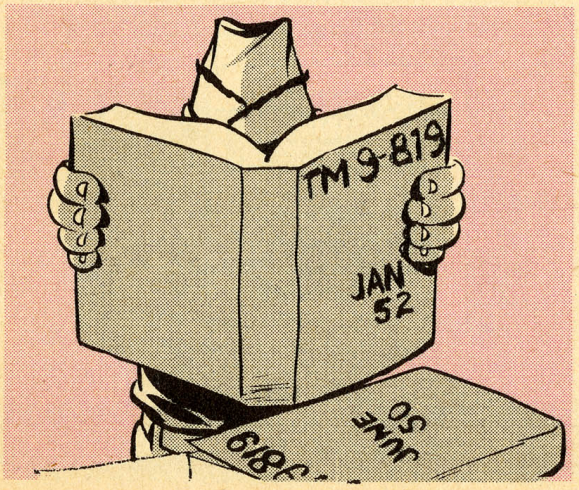



You need to have an old TM 9-819 (June 50), page 173, kicking around to tell you proper adjustment if you have a single-sprag type clutch. (That manual is out of supply now.)

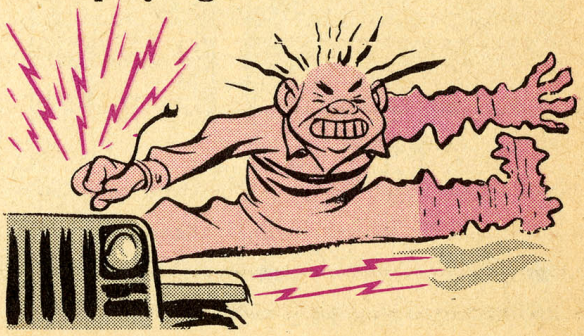
The double-sprag adjustment is on 173-174 of TM 9-819 (Jan. 52). Or, preferably, get Ordnance to install a double-sprag clutch and shift linkage as per MWO Ord G742-W3.

Now if you want to keep the brakes safe and sound, it's important to make an occasional check of the emergency brake to make sure the shoes are completely released and free. Check for grease on the shoes or drum. It might cause them to drag or even lock. Adjust them according to TM 9-819, pages 197-200 for the emergency brake, and pages 186-198 for the foot or service brake.

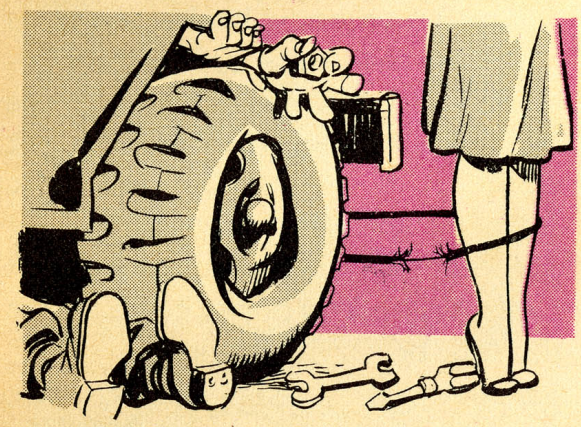





If you don't want to be shocked, disconnect the battery before you start playing around with the elec-

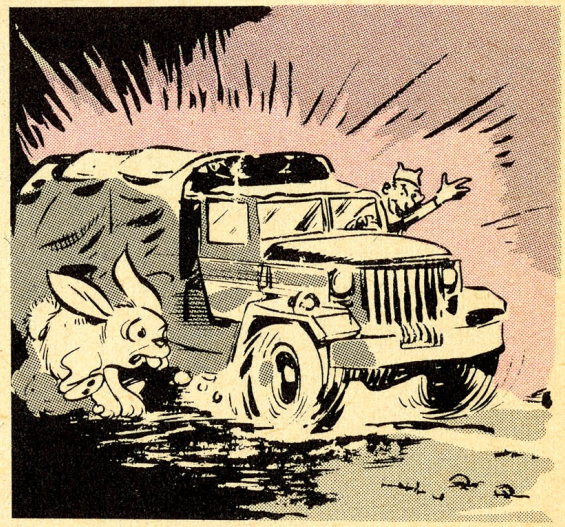


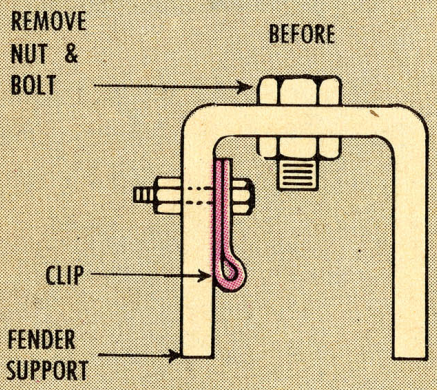
trical connections. Or, when you're using the slave battery receptacle (if you have one) to throw current into another vehicle, make sure you hook up positive to positive and negative to negative.

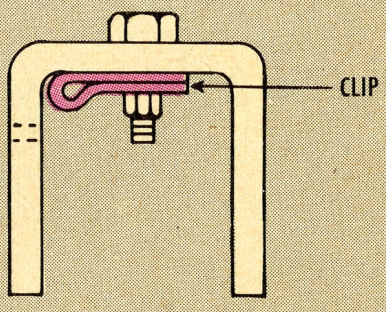


On the early model trucks, relocate the wiring harnesses leading to the blackout marker-lights before it rubs through its insulation and grounds out on the fender lip. Start on the right front fender and remove the 5/16" nut and bolt from the fender support. Remove 1/4" nut, bolt, and clip from where it's located and put it where you removed the 5/16" nut and bolt. Same procedure goes for the left front fender. On later models this has already been done at the factory.

The "get-up-and-go" of your truck, in the long run, is pretty much up to you, depending on how well you look after it and how well you drive it. It's the old story of one hand washing the other. Even though everything's being done that can be done to make your truck operate as it should, it still can't do a thing without your care and direction.

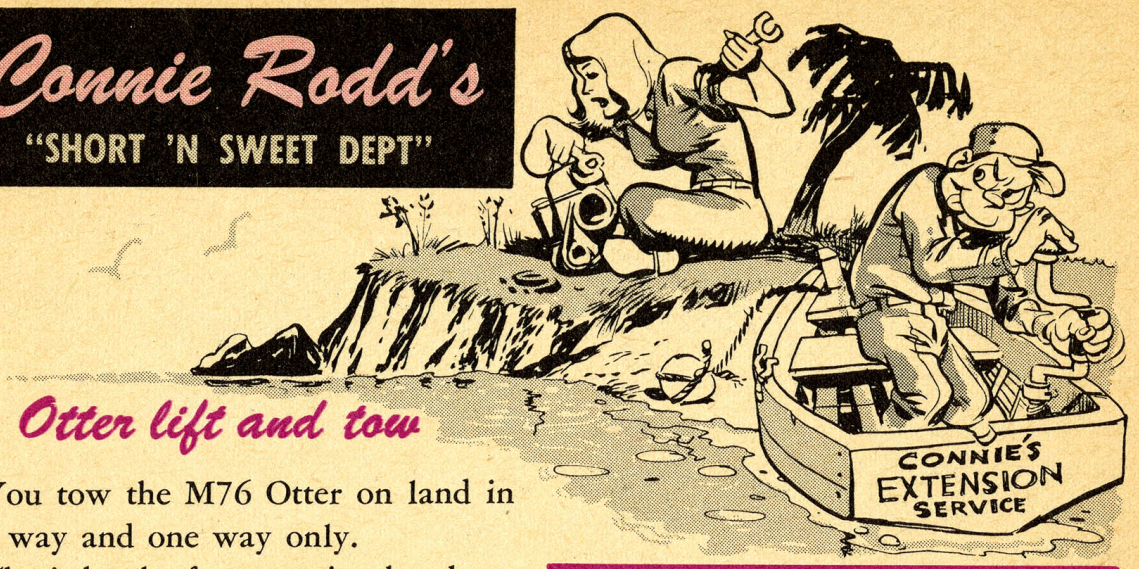





Your authority for this fix on early production vehicles is TB 9-819-13 (17 July 53).

# Connie Rodd's
## "SHORT 'N SWEET DEPT"



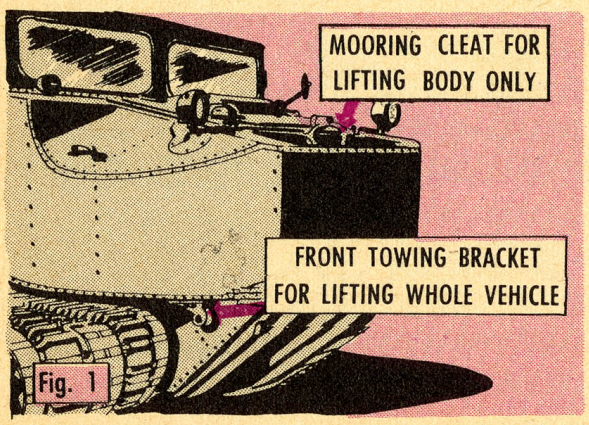

## Otter lift and tow

You tow the M76 Otter on land in one way and one way only.

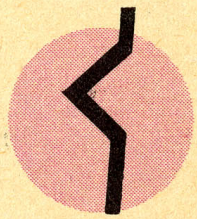
That's by the front towing brackets, using a tow bar or tow cable. The brackets are riveted to the frame and have a pulling capacity of about 12,000 lbs.

You use that mooring cleat **only** for mooring or towing when the Otter is afloat. It's located on the top deck and is attached to the skin surface of the vehicle. It's used as one point of a 3-point lift but only for lifting the body. When lifting the whole vehicle, use the towing brackets that are secured to the frame in front and the lifting eyes on the top rear of the body (Fig. 1).

Remember: The mooring cleat is only skin-surface mounted and isn't intended for much tough and heavy work.




## Whatzzit?



It's not a portion of Jane Russell's classy profile—that's for sure. But it is a bump that's to be caressed tenderly when driving any member of the light tank family. If you're all a'flutter and can't guess—peep at the next page.

## Easy-does-it tire hoist

Saw one of the slickest gadgets—a modification that **Mr. S. L. Watson** of the Automotive School, Atlanta General Depot, believes should be on every hydraulic-jack handle.

The handle has a section of ¾" pipe slipped over it. Exact length is not important, just so 3" or so stick out on the end away from the jack valve-slots in the handle. This pipe is welded to the handle and has the end cut out as in

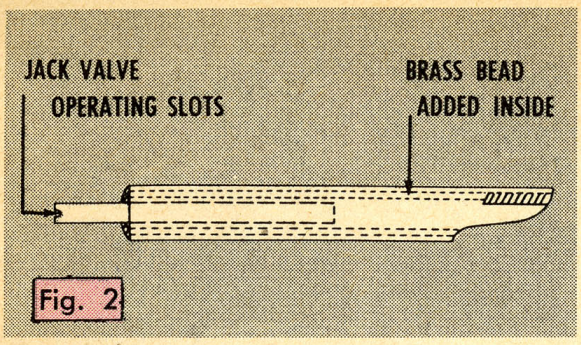
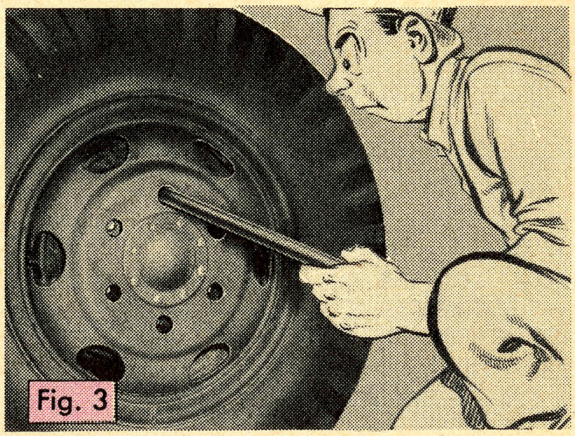



Fig. 2. The inside of the cut-out end is lined with brass to protect threads of the wheel lugs (brass is laid in there by the welder—just a light bead). Shove the handle through the top hole of a wheel, over the top lug on the hub and lift the wheel into place when changing tires (Fig. 3).

It's a darn clever and handy idea . . . cheap and easy to do. It could save a backache or keep a heavy wheel and tire from falling on you. One size tool will work on all vehicles except the ¼-ton, where you don't need it anyhow.




## *Find a fouled-up floor in your fightin' forty-eight? Safety spring keeps your floor latch outta trouble*

### GADGET KEEPS LATCH WHERE IT BELONGS

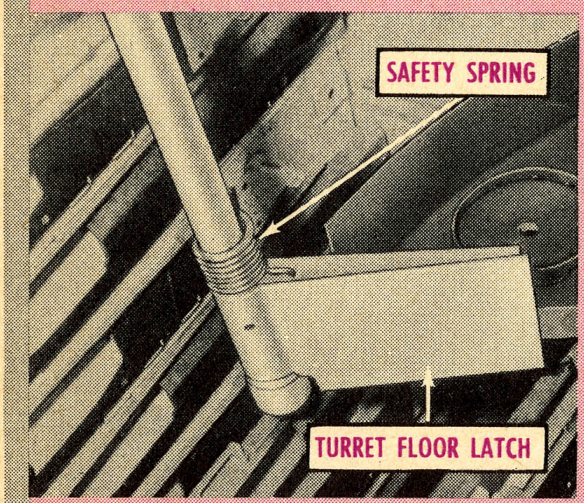



Fig. 4—Spiral safety-spring on the turret-floor latch prevents damage when traversing the turret. Latch cannot swing out and foul on nearby parts.

### KEEP YOUR TAIL DOWN — TURRET LATCH . . .

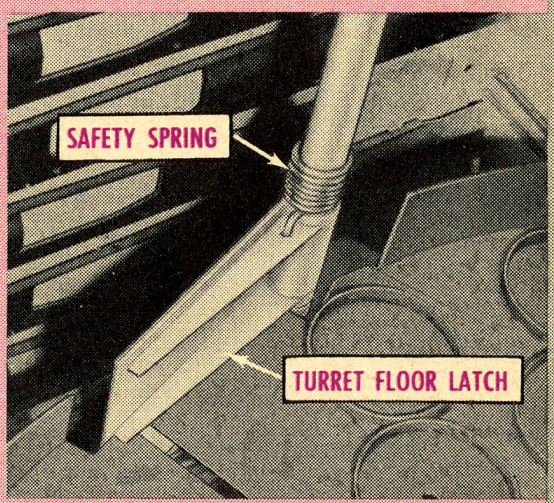
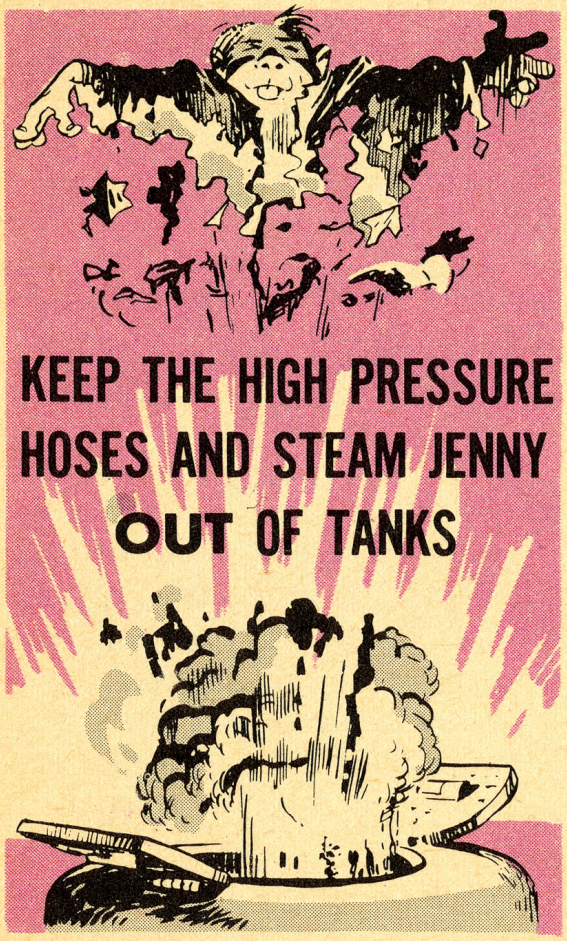



Fig. 5—See, all tucked in tight and out of harm's way, no torn out $CO_2$ lines, no busted junction boxes, no punctured air cleaner, and no grief.

## *Now hear this!*

It's been said before; it'll be said again. PS has said it, TM's have said it, everybody's said it.



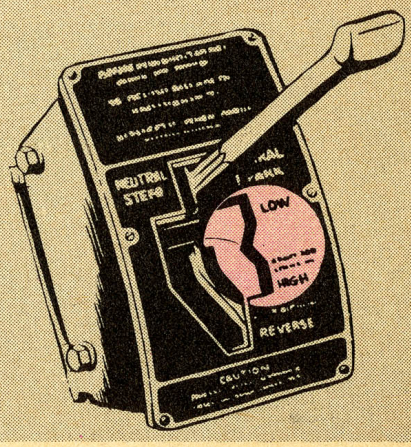

There's always one guy, though. He ends up with his rangefinder fogged up, his azimuth indicator rusted stiff and his buggy generally loused up. There's nothing inside a tank, turret or hull, that takes kindly to high-pressure cleaning. Starter relays go out, the radio gets ruined—it's just not worth it.

Always remember that the shiniest tank in the world won't get you home in one piece if its guts are full of rust and corrosion. It's the stuff you can't see that does the dirt.

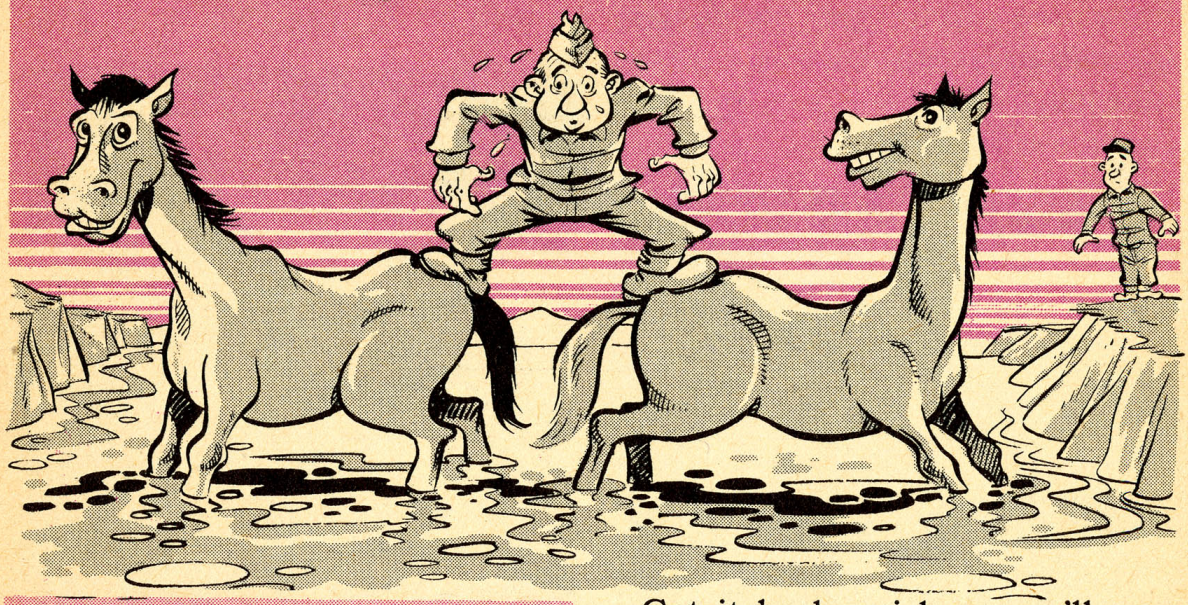
And please, if you give the boys time to clean their tanks the right way, give 'em the devil if you see a hose inside.

## *Whatzzit Answer*

It's the bump between "Low" and "High" on the range-selector control box. When shifting from low to high, pull control lever straight back and hug that bump. Then there's no chance of accidentally moving into reverse when going forward.



# Got Your Transfer??



**The transfer tube that lets coolant bypass the thermostat on your M44 Series, 2½-ton should not—never—be removed when you get a power-plant heater.**

Check your 2½-ton now if you've got her equipped with a Power Plant Heater Kit (Stock No. G249-5701357). Ten to one the transfer tube (Fig. 1) between the water pump and thermostat housing has been removed.

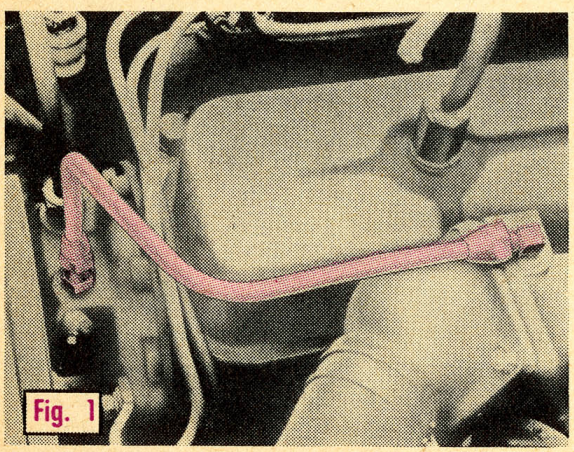


Fig. 1

Get it back quick or you'll run into trouble as you run out of coolant. And pass along the word that the installation instructions tucked into this kit shouldn't have said to remove the tube in the first place.

The transfer tube (Stock No. G742-7529099) is not just an extra gadget that can be tossed aside. It lets coolant bypass the thermostat for a couple of good reasons—mainly, you get circulation through the system during the time the thermostat valve is closed. This circulation, in turn, gets the heat to the thermostat so it'll open when it's supposed to open. All of which prevents an excessive build-up of pressure and heat within the cylinder block.

Without this circulation, too much heat cripples the cylinder-sleeve O-rings within the block. Coolant gets down into the crankcase and soon you have a unique

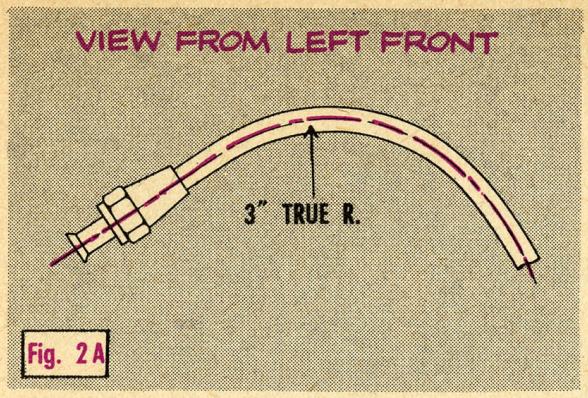


Fig. 2A

combination of oil, water, and ethylene glycol all over the place.

You need that transfer tube, and need it now. If it's already been scrapped, you can make a good substitute:

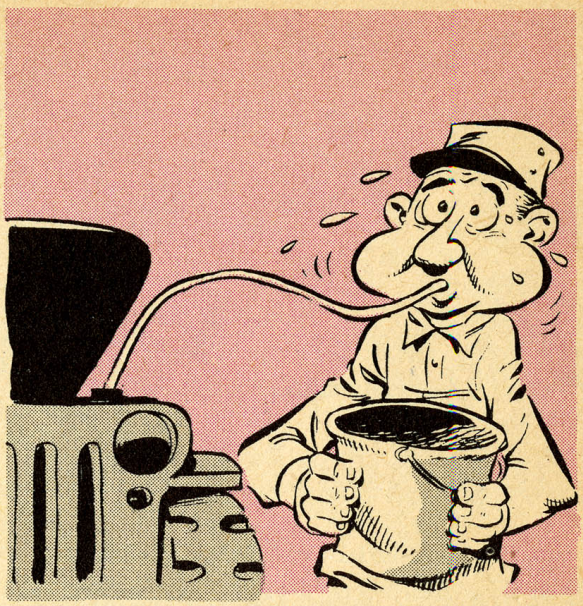
1. Get a 15" length of 3/8" copper tubing (Stock No. H007-021-8110). For the tube fittings use two SAE flare nuts (Stock No. H006-0230425) and flare both ends of the tube. Then bend it to shape (Fig. 2a, b, and c).

2. Drain about 10 quarts of coolant into a clean bucket or can. This'll take the level down below where you make the connection.

3. Remove the plug from the top of the water pump and put in a flared connector, SAE, 3/8" tube by 1/4" male pipe thread (Stock No. H006-0213540).

4. Take the plug out of the thermostat housing and install a flared elbow, SAE, 3/8" tube by 1/4" male pipe thread (Stock No. H006-0261640). Point the elbow toward the radiator.

5. Connect the tube like in Fig. 1, and then dump the coolant back in the radiator.



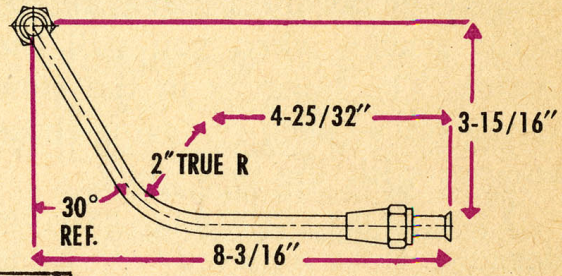


Fig. 2B

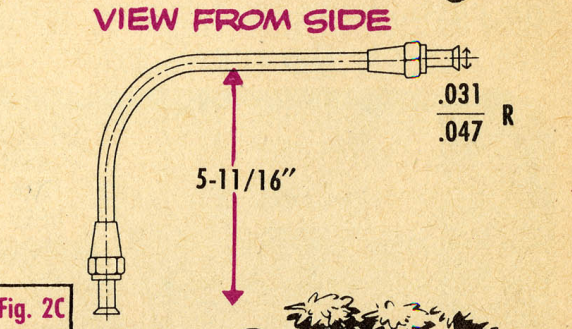
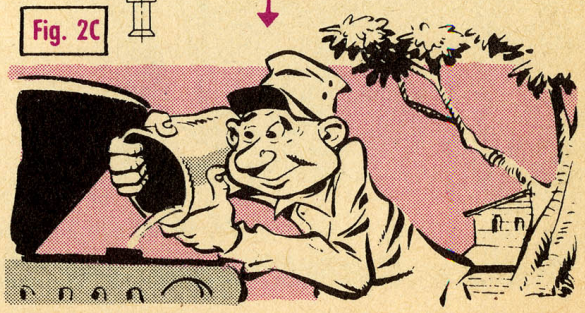
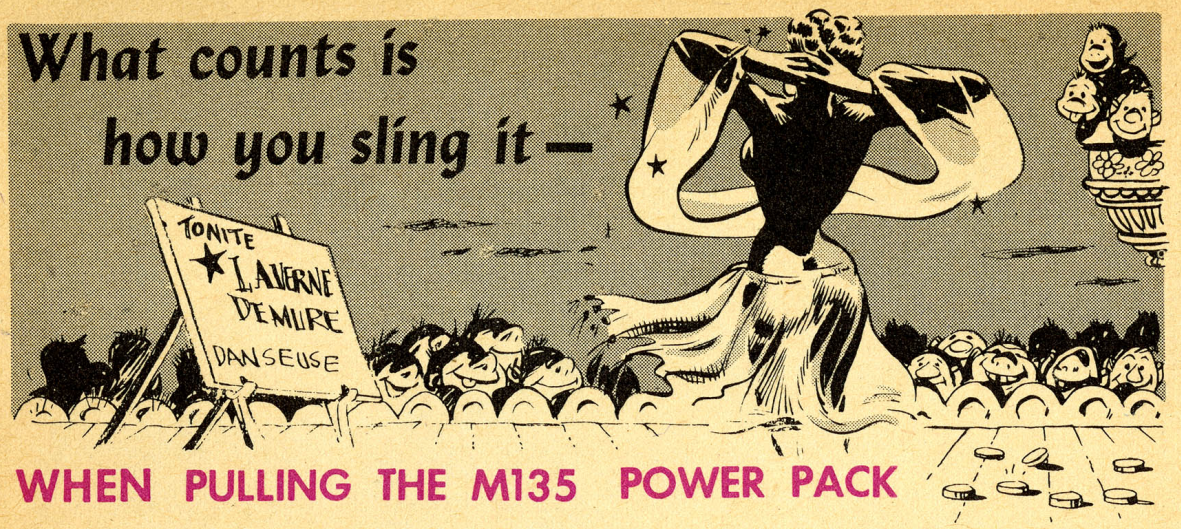


Fig. 2C






## WHEN PULLING THE M135 POWER PACK

Connie found out why those air cleaners and air lines are getting banged-up on those early model M135 trucks when you pull the engine. The bugger's in the stew 'cause you've been removing those engines with the new sling.

Y'see those early engines were designed to be removed with Sling Ord No. 7950170, as shown on page 150 of TM 9-819A. But soon after those first few engines, the forward lifting-eye was moved to a new position—from slightly ahead of the carburetor to slightly behind the carburetor—and a new sling was put into the supply system to go along with the change. It's Sling, Ord No. 7950988.

So, if you have one of those early engines and a new-type sling, your best bet is to remove the stud and lifting eye from the #4 head-bolt position and put it in the #5 head-bolt position (Fig. 1). This way you'll save bashing the air filter and air lines.

On the other hand, if you have all late model M135 engines with the forward lifting-eye slightly behind the carburetor and the old sling (as pictured in the TM)—you better go get a new sling and keep yourself out of trouble.

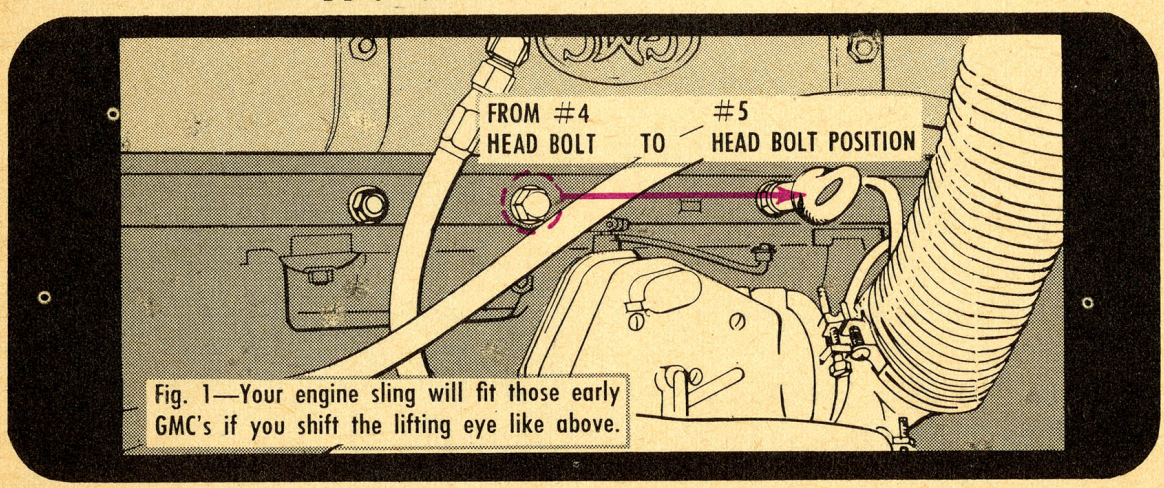
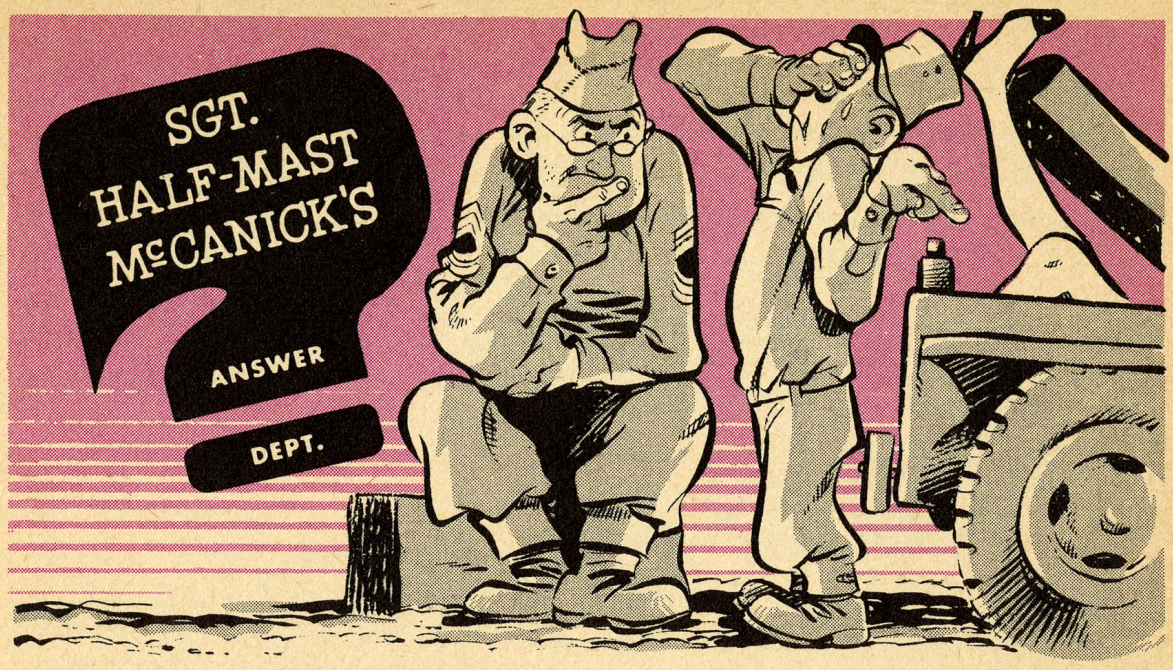



Fig. 1—Your engine sling will fit those early GMC's if you shift the lifting eye like above.




## FIRE EXTINGUISHERS

*Dear Half-Mast,*

*What's the scoop on the fire extinguishers in general purpose vehicles? On several occasions, while participating in command inspections, I found myself right in the middle because I didn't have one in my truck.*

*My commanding officer says they're not required, but the inspector says* **all** *general purpose vehicles, except the ¼-ton, are to have them and promptly gigs us. What gives?*

*Pvt C. P. L.*

Dear Pvt C. P. L.,

Sounds like your inspector is way behind times—he's quoting you an old regulation that's laid down in SR 385-155-1, Sec VII, subparagraph h. That section went out the window when Change 2 of the SR came out in June 1952.

Now, vehicles operating under these conditions are required to carry fire extinguishers on them:

1. Vehicles used for accident calls, fire and security protection
2. If used constantly in areas where fire protection isn't to be had
3. If used where ammunition or other hazardous materials are handled or stored
4. If used in transporting dangerous materials, like ammo, gas, etc.
5. If used to carry seven or more passengers

Your Old Man is justified in removing the extinguisher if he decides your vehicle doesn't fall into any of these categories and—you should **not** be gigged.

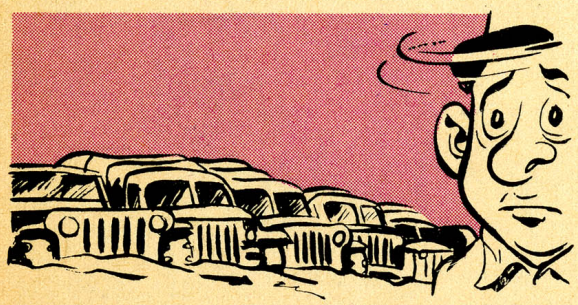
The SR change also says your commanding officer (**not** the inspector) has the right to mount a fire extinguisher, on any vehicle he thinks necessary, for the protection of the vehicle or any of its mounted equipment. So according to Change 2 of SR 385-155-1, your CO has a lot to say about the fire extinguisher.

*Half-Mast*

## YOU GOTTA HAVE BATTERIES

*Dear Half-Mast,*

*I have an average of about 730 National Guard vehicles parked with the batteries all removed for storage as per NGB Cir #2 (24 Jan 49).*



*They must all be run up to normal operating temperature every 30 days. Can I start the vehicle with a slave battery and then count on the voltage regulator to hold the generator-output voltage down to what the coil needs? I can save a lot of man hours each month by not installing the batteries.*

*MSgt C. K. S.*

Dear MSgt C. K. S.,

Better not run those vehicles without batteries. The regulator will hold down the generated voltage to where it won't burn out the coil. But, you're asking a lot from the regulator since it's designed to work **with** both batteries and will be overworked without them.

The batteries don't have to be in the vehicle, only in the circuit. Set up several sets of batteries with slave cables on carts (swipe Junior's wagon) and hook up one alongside each vehicle while you run. This will make life much easier on the regulators and will recharge the starting batteries at the same time.

*Half-Mast*

## DOOR DROP

*Dear Half-Mast,*

*That map-compartment door on the M38A1 has been making trouble in the way of skinned shins and damaged knees. The door drops open and stops the left leg on its way to the clutch pedal.*

*What do you think of a chain to stop the door from falling and interfering with driver operation?*

*T. F. H.*

Dear Mr. T. F. H.,

Playing kneesy with a map-compartment door is no fun. And if the door doesn't hit you but drops open, scattering things around, you're not much better off. Which could happen, even with a chain stop, when the lock's loose.

The best bet is to adjust the lock so's it won't open unless you open it.

To get it that way, loosen the striker plate's attaching-screw on the dash-panel (Fig. 1), and move the plate to a straight up-and-down position. Then

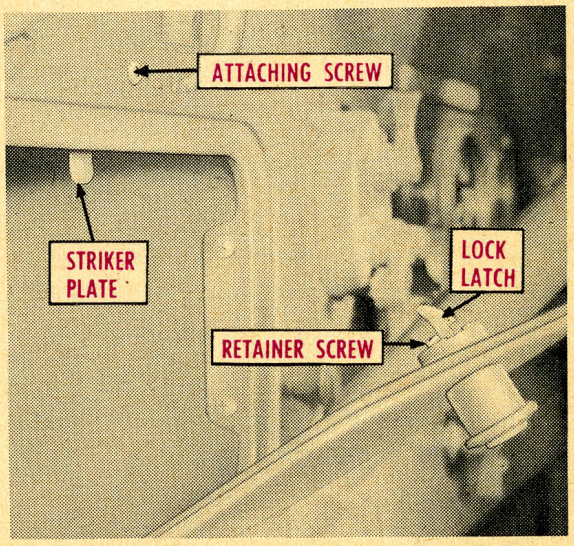



Fig. 1—Keep the map compartment door shut with the striker plate and lock in place.

tighten the screw again. And loosen the door lock retainer-screw and position the lock so it'll strike the striker plate's center. Then tighten that screw, too.

Those first-aids should hold it. But if it doesn't, bend the striker plate in or out (careful like) until the latch'll hold that plate good and tight.

Half-Mast

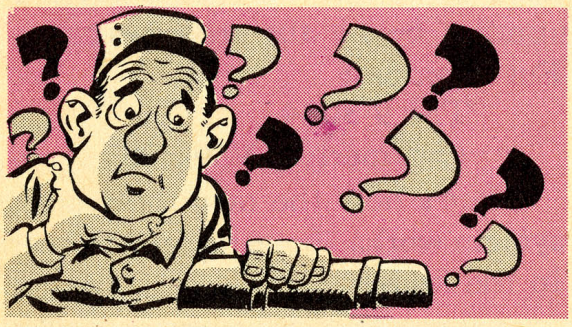
## WHAT'S THE THING

*Dear Half-Mast,*

*In Ord 7 SNL G-501 (Jan 53, 2½-ton, 6x6 Amphibian truck) there is listed a Container, metal, assembly, Stock No. G501-7744120 (page 6, On-Vehicle Material).*

*Can you clear up a mystery and tell us what is "the thing"?*

*H. P. L.*



Dear H. P. L.,

Don't let the nomenclature throw you.

That container used to be a spare gasket container on some of the early DUKW's. Now it's merely two metal straps for holding a gasket set which has been packed for overseas shipment.

If you want to get an idea of what the thing looks like, refer to page 20, Fig. 9, in TM 9-802 (23 Feb 45).

Half-Mast

## TILT CONTROL

*Dear Half-Mast,*

*What are the two wedges under the 5th wheel of the M52 tractor-truck for?*

*WOJG D. R. C.*

Dear Mr. D. R. C.,

To control her tilt, m'boy — the amount of sidewise tilt between the truck and trailer. This set-up isn't found in commercial vehicles which aren't built for the rough, cross-country driving many Army vehicles meet. The wedges are moved back according to the roughness of terrain you expect to travel over, and forward when moving on paved highway.

Half-Mast

## SOUND-OFF—TO HALF-MAST

**Got troubles? Ideas? Fixes? Tricks? Wanna tell somebody about 'em?**

Then, Sgt Half-Mast is your man. He'll listen to anybody's idea or problem. Just send them to him in care of **PS Magazine, Aberdeen Proving Ground, Maryland.** And, if you need an answer to that problem, he'll fire it right back. He'll pass your ideas, fixes and tricks on better maintenance along to the other guys who need 'em.

# SUPPLY & DIRECTIVES

## number, please ??

If you've ever called an old number and heard the wrong voice (maybe a man's), you know how important it is to keep your list of numbers up to date.

The same thing could happen if you asked for a revised TM by the old number. You might get a TM, all right, but it won't be what you expected. According to SR 310-20-1 (15 Dec 52) there's a big number switch being made.

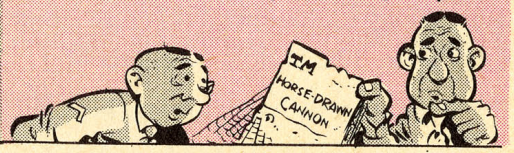
The numbering of all new and revised Ordnance TM's, LO's, and TB's is being changed to fit this new numbering system. Some revised TM's and LO's have the old number below the new one.

For example:

TM 9-3034
(Formerly TM 9-392)

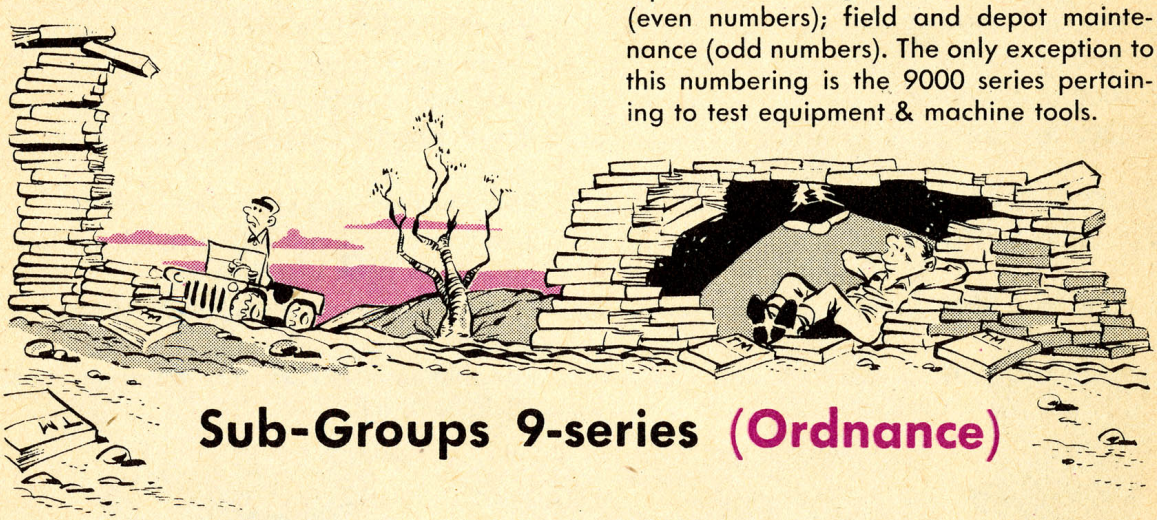
Here's how the new numbering system works—bone up on it to keep in the know:

| | OLD METHOD TM NO. | NEW METHOD TM NO. |
|---|---|---|
| 1st & 2nd echelon | 9-200 to 9-999 | Last digit an even number (such as: TM 9-3034) (FORMERLY TM 9-392) |
| 3rd, 4th, & 5th echelon | 9-1100 to 9-1899 | Last digit an odd number (such as: TM 9-8007-1) (FORMERLY TM 9-1769AA) |
| Miscellaneous (Ammo Instruction Guides, etc. for both organizational and Ordnance levels) | 9-1900 to 9-2999 | 9-1000 to 9-1999 (see sub-groups) |



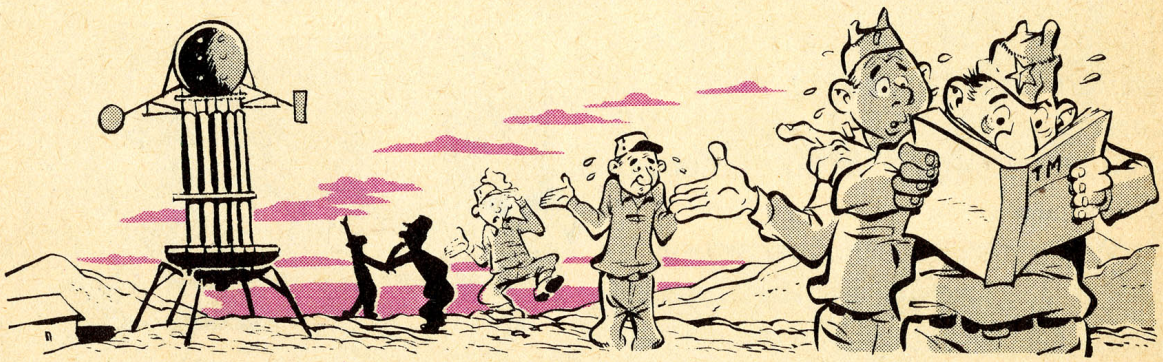
# Main Groups 9-series (Ordnance)

| TM No. | Subject |
|---|---|
| 9-1000 to 9-1999 | Miscellaneous (see sub-groups.) |
| 9-2000 to 9-9999 | Operation and organizational maintenance (even numbers); field and depot maintenance (odd numbers). The only exception to this numbering is the 9000 series pertaining to test equipment & machine tools. |



## Sub-Groups 9-series (Ordnance)

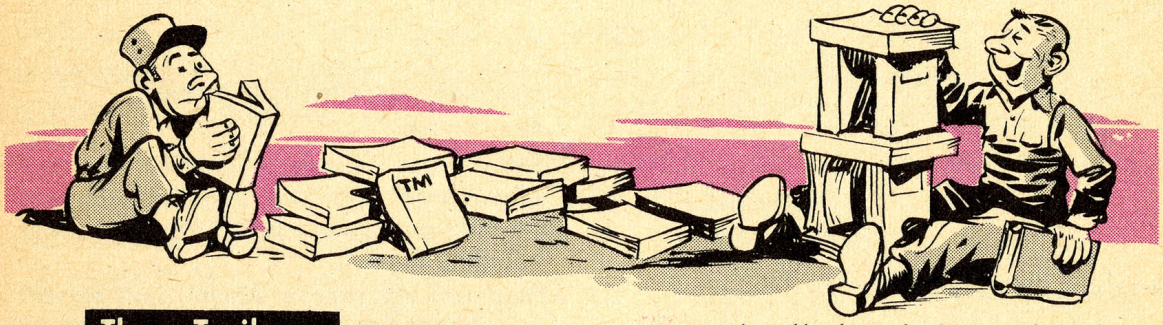
| | |
|---|---|
| 9-1000 to 9-1899 | Miscellaneous (other than ammo.) |
| 9-1900 to 9-1999 | Ammunition |
| 9-2000 to 9-2999 | Small Arms including pistols, revolvers, rifles (except recoilless), machine guns, submachine guns ; automatic guns (up to and including 20mm). |
| 9-3000 to 9-3999 | Field artillery (above 20mm); anti-aircraft artillery (above 20mm); mortars; automatic guns (above 20mm); rocket launchers; recoilless rifles. |
| 9-4000 to 9-4999 | Unassigned. |
| 9-5000 to 9-5999 | Guided Missiles. |
| 9-6000 to 9-6999 | Fire control and sighting equipment. |
| 9-7000 to 9-8999 | Automotive. |
| 9-9000 to 9-9999 | Machine tools and test equipment. |

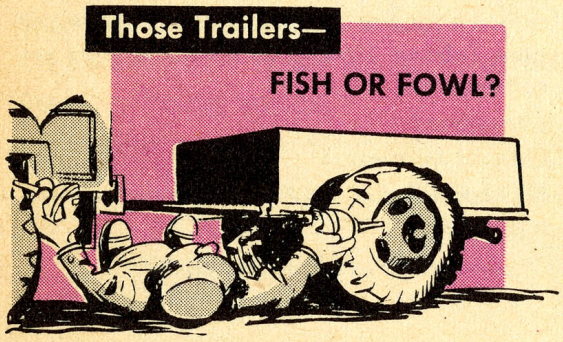


# Sub-Groups 5-series (Engineer)

For you engineers, the subnumbers in the 5-series (Engineer series) higher than 5-999 are as follows:

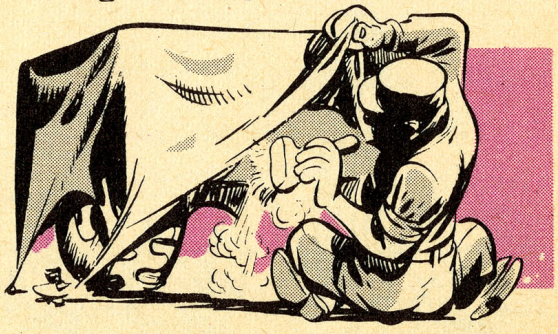
| TM No. | Subject |
|---|---|
| 5-1000 to 5-1999 | Road surfacing equipment. |
| 5-2000 to 5-2999 | Water supply equipment. |
| 5-3000 to 5-3999 | Trucks and tractors. |
| 5-4000 to 5-4999 | Tools, mechanical and hand. |
| 5-5000 to 5-5999 | Power supply—electrical, gas, and pneumatic. |
| 5-6000 to 5-6999 | Reproduction equipment. |
| 5-7000 to 5-7999 | Anti-aircraft equipment (searchlight trailers, barrage balloon winches, etc.) |
| 5-8000 to 5-8999 | Stream-crossing equipment (Pontoon bridges, etc.) |
| 5-9000 to 5-9999 | Miscellaneous (trailers, cranes, refrigeration equipment, etc.) |



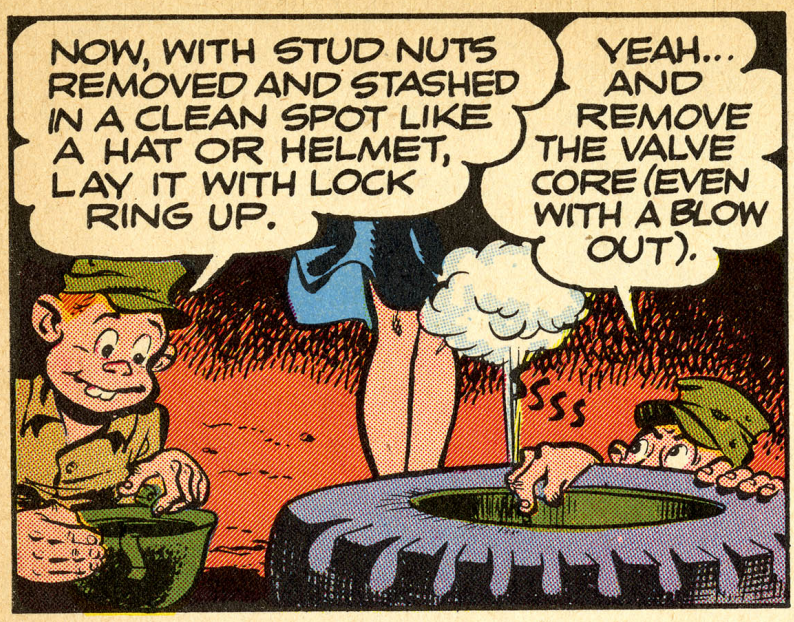



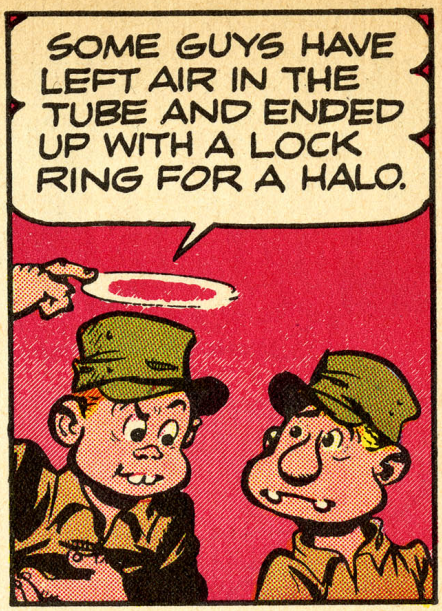

You've been asking about trailers and how they should be carried on your PM roster (WD AGO Form 460)—as equipment or accessories.

Well, it's like this, according to TM 9-2810 which hit the street on 9 Oct 53: If you use the trailer with one truck all the time, maintain it with that truck. Like f'rinstance your semi, or the power trailer for your radio van. If you don't regularly use the trailer with any one vehicle, treat it as a separate vehicle and maintain it according to the use it gets. Simple, wot?

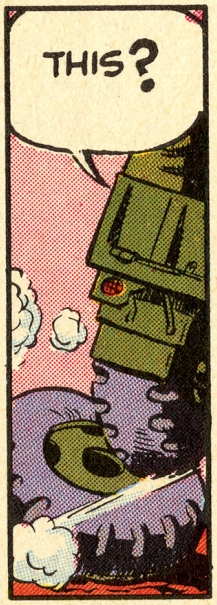


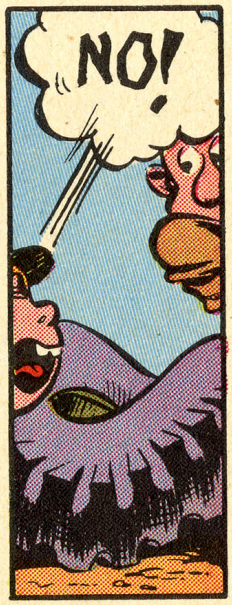
JOE DOPE
HOW TO CHANGE A TIRE *
...THERE AIN'T...BUT THERE'S EASIER WAYS... WHO TELLS HIM CONNIE?
YOU TELL HIM, JOE!
THERE MUST BE A AUTOMATIC WAY TO DO IT!!
*ON ALL M-SERIES VEHICLES EXCEPT M38 AND M38A1
FIRST, BEFORE JACKING UP.... BREAK WHEEL STUD NUTS LOOSE WITH A QUICK HALF TURN.
CHOCK BLOCK WHEELS FOR EXTRA SAFETY

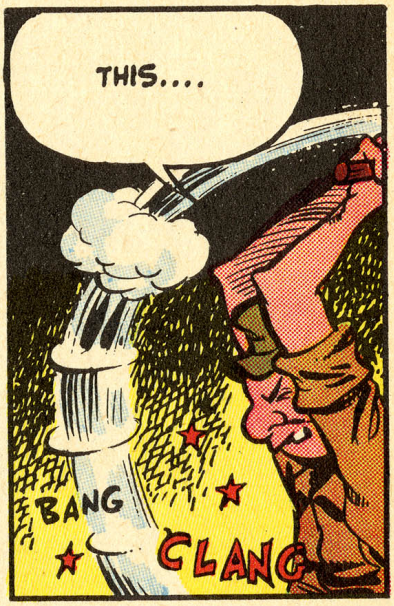

NOW, WITH STUD NUTS REMOVED AND STASHED IN A CLEAN SPOT LIKE A HAT OR HELMET, LAY IT WITH LOCK RING UP.
YEAH... AND REMOVE THE VALVE CORE (EVEN WITH A BLOW OUT).
SSS


SOME GUYS HAVE LEFT AIR IN THE TUBE AND ENDED UP WITH A LOCK RING FOR A HALO.

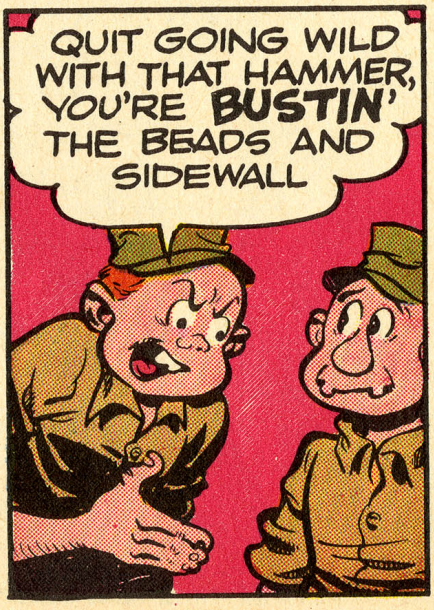
NOW DON'T STAND THERE LOOKING AT IT...WHAT DO YA DO NEXT?


THIS?

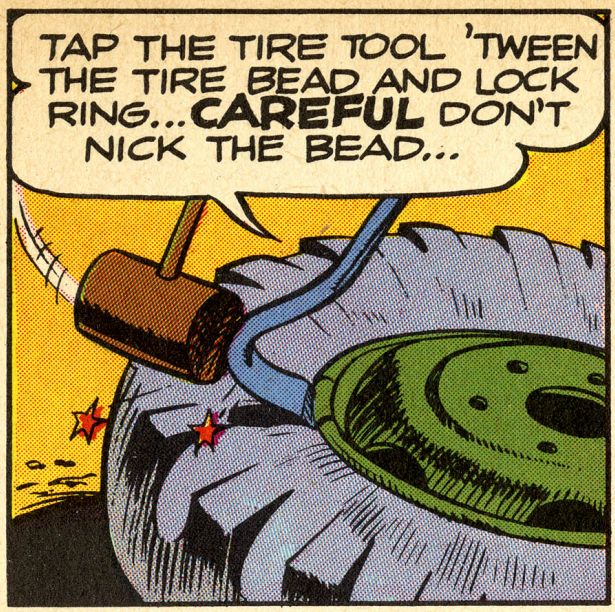

NO!


THIS....
BANG
CLANG

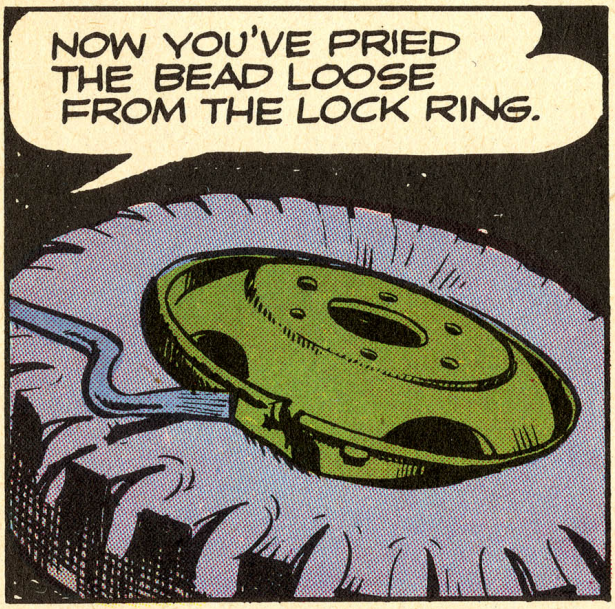
NO!


QUIT GOING WILD WITH THAT HAMMER, YOU'RE BUSTIN' THE BEADS AND SIDEWALL

TIRE IRON AND A THREE-POUND HAMMER DO IT.... NO SOLVENTS OR OIL ALLOWED.

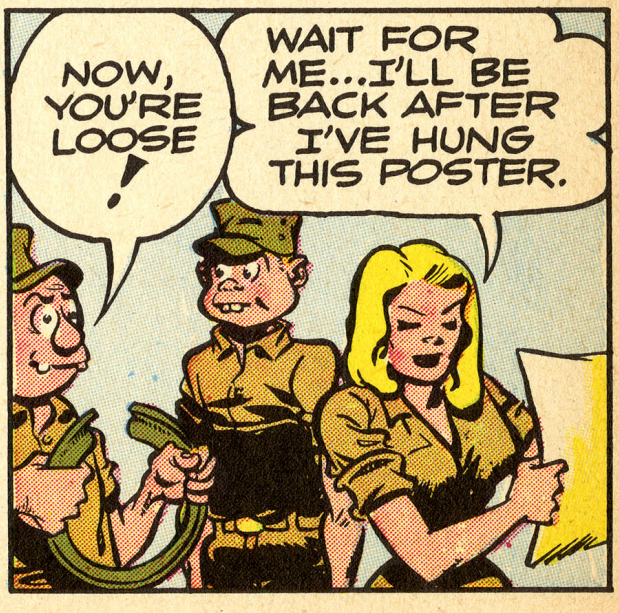

TAP THE TIRE TOOL 'TWEEN THE TIRE BEAD AND LOCK RING... CAREFUL DON'T NICK THE BEAD...

ROCK YOUR TOOL AS YOU WALK IT AROUND, DON'T PINCH... THE TUBE!

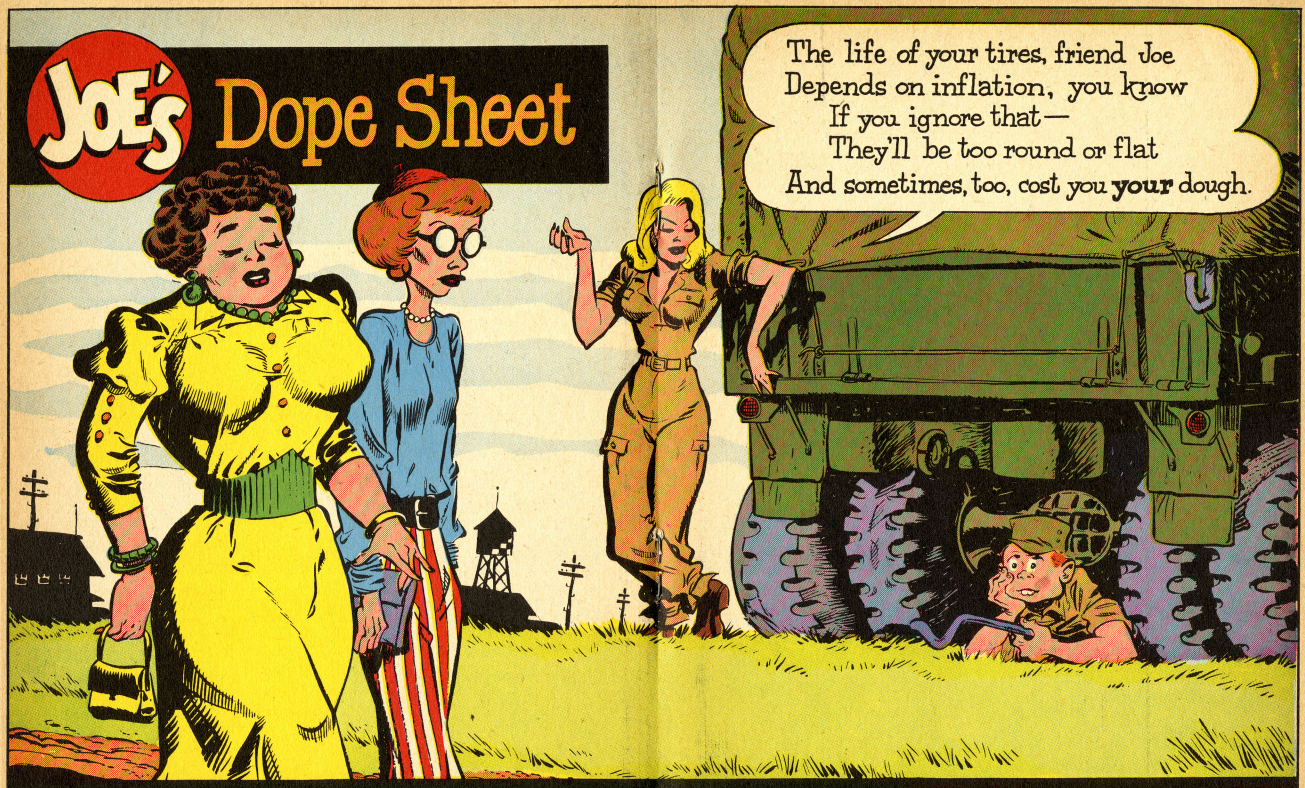

NOW YOU'VE PRIED THE BEAD LOOSE FROM THE LOCK RING.

NEXT, WITH THE OTHER END OF THE TOOL Y'START THE LOCK RING LOOSE.

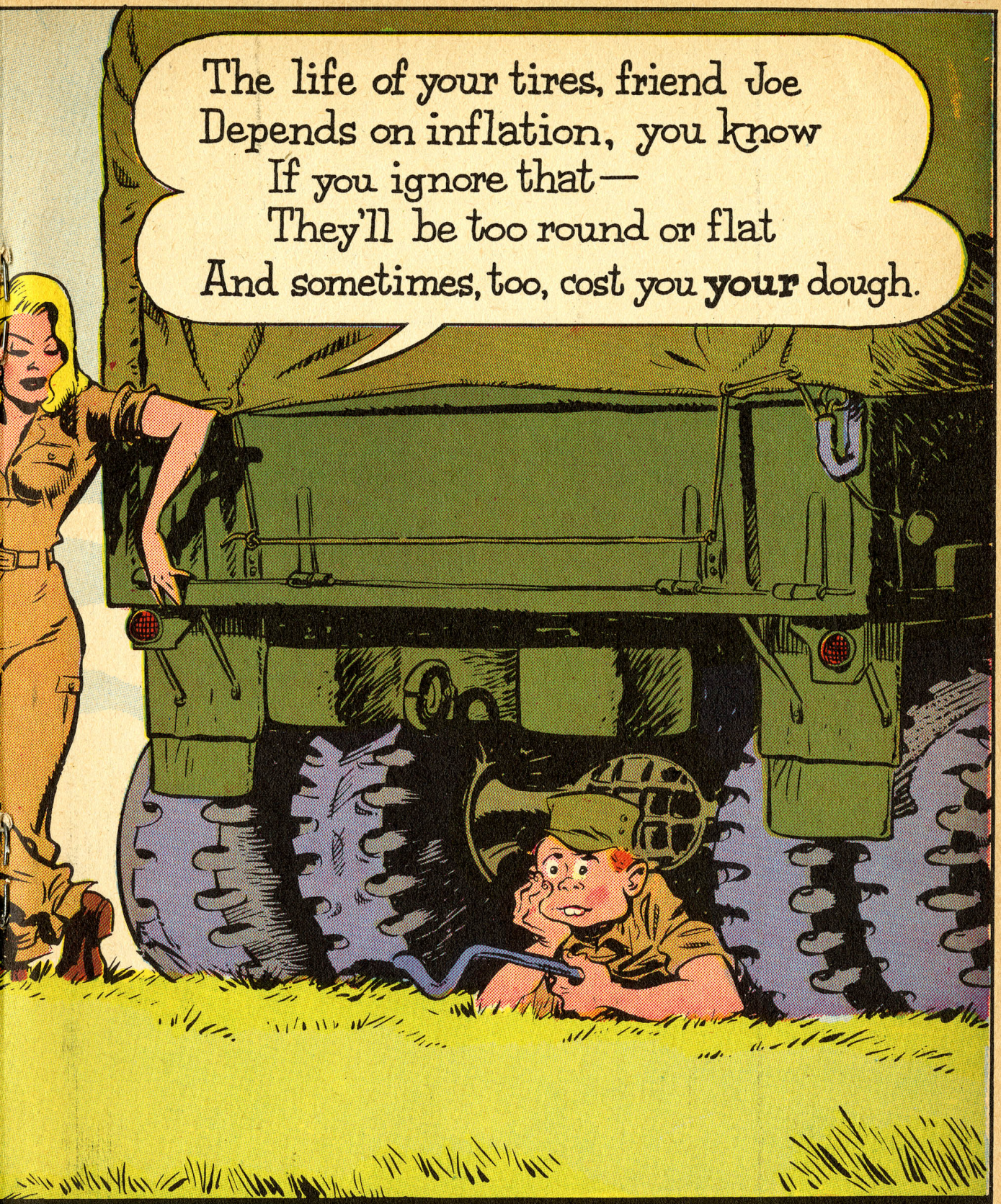
PULL THE FREE END UP AND WALK THE IRON AROUND THE WHEEL. LIFT THE RING—DON'T BEND IT.


NOW, YOU'RE LOOSE!
WAIT FOR ME...I'LL BE BACK AFTER I'VE HUNG THIS POSTER.

PRODUCED UNDER SPECIAL LICENSE TO U. S. DEPT. DEFENSE COPR. 1954 WILL EISNER PRODUC

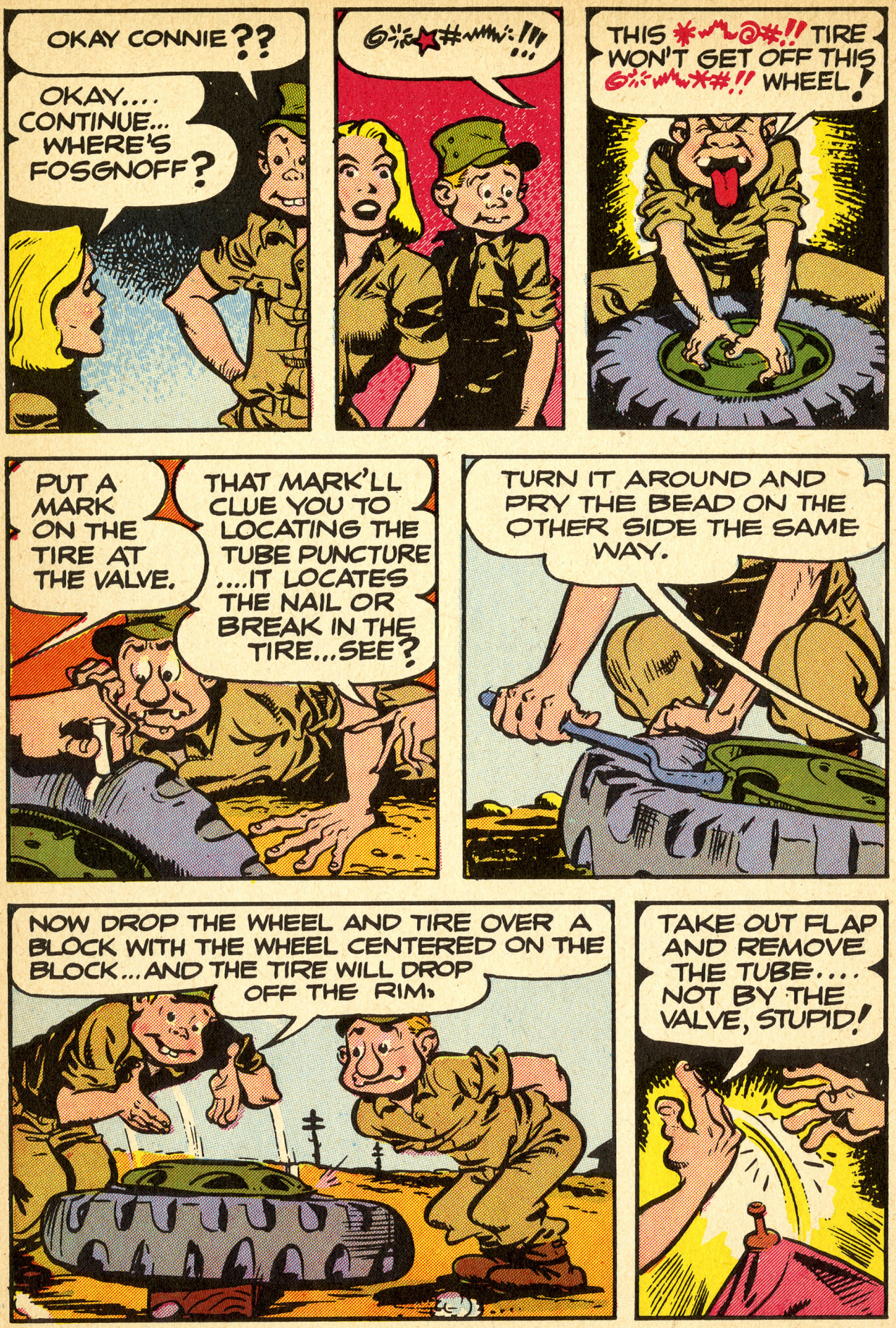


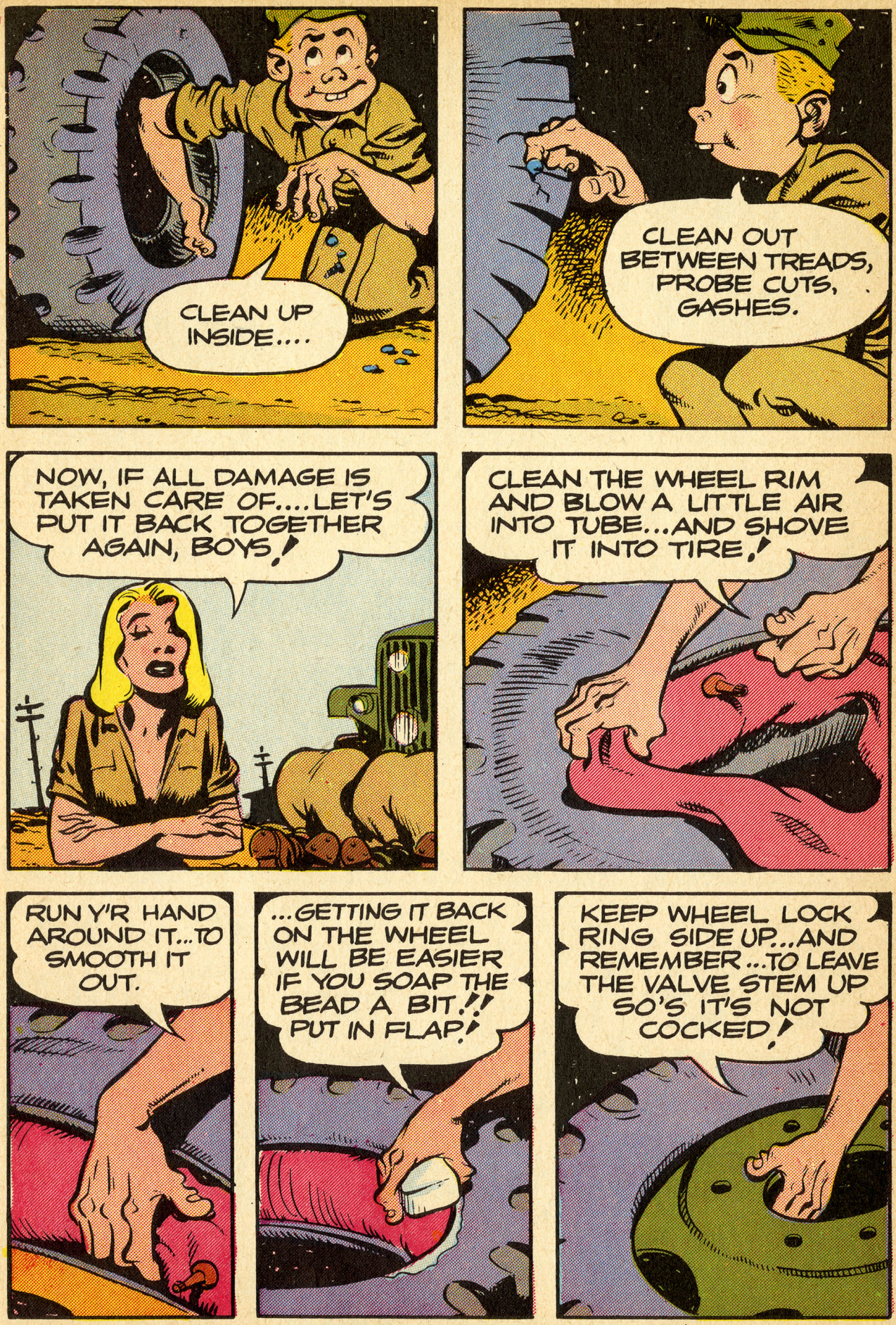

PRODUCED UNDER SPECIAL LICENSE TO U. S. DEPT. DEFENSE COPR. 1954 WILL EISNER PRODUCTIONS

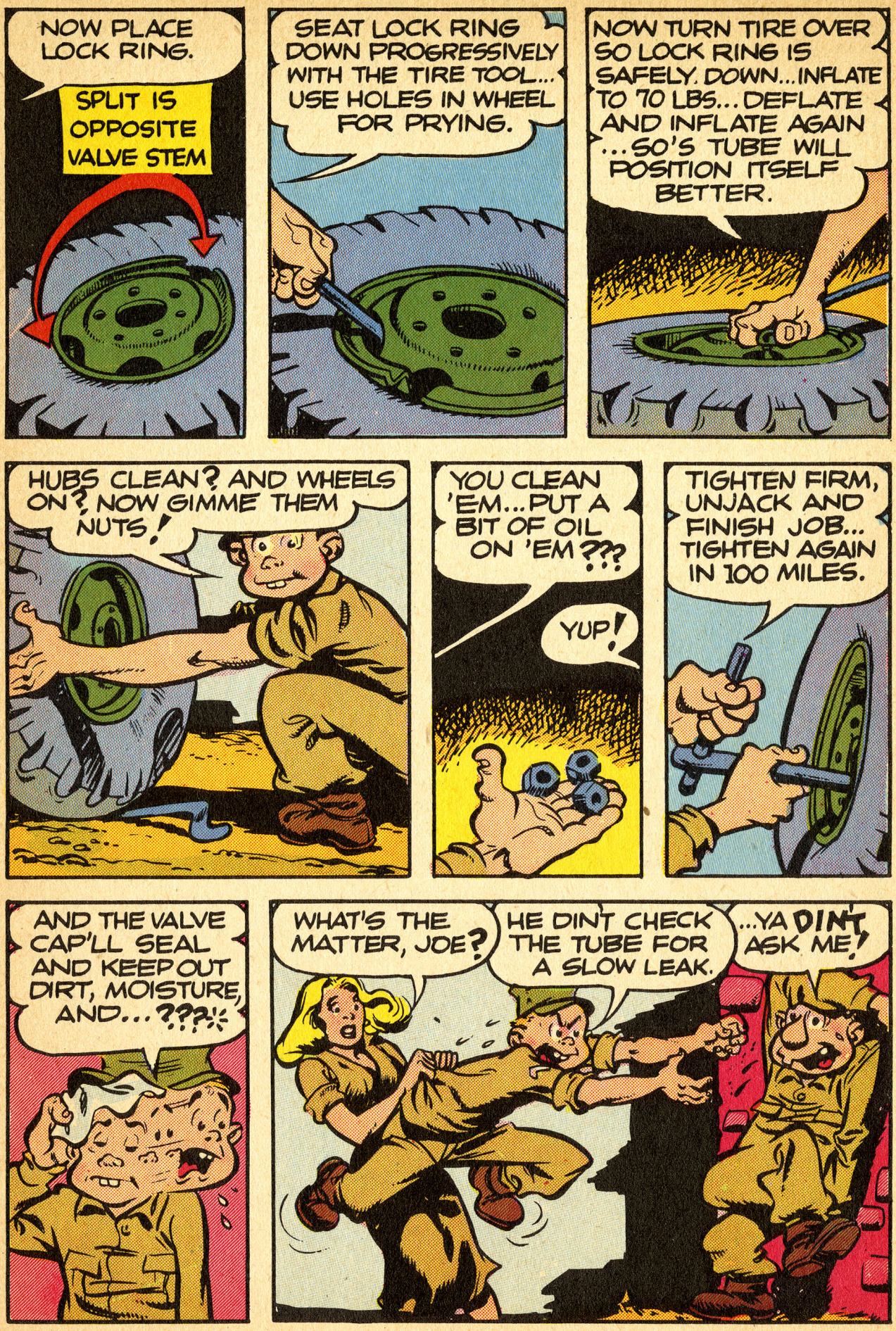



UIPMENT... *Take care of it*

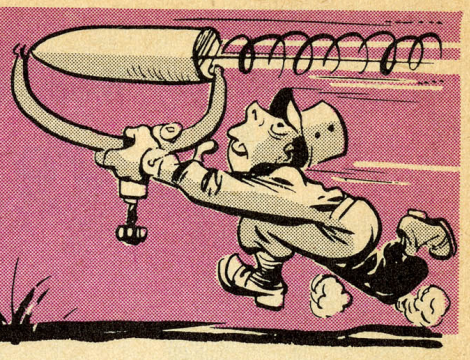
CTIONS


OKAY CONNIE??
OKAY.... CONTINUE... WHERE'S FOSGNOFF?
THIS TIRE WON'T GET OFF THIS WHEEL!
PUT A MARK ON THE TIRE AT THE VALVE.
THAT MARK'LL CLUE YOU TO LOCATING THE TUBE PUNCTURE ....IT LOCATES THE NAIL OR BREAK IN THE TIRE...SEE?
TURN IT AROUND AND PRY THE BEAD ON THE OTHER SIDE THE SAME WAY.
NOW DROP THE WHEEL AND TIRE OVER A BLOCK WITH THE WHEEL CENTERED ON THE BLOCK...AND THE TIRE WILL DROP OFF THE RIM.
TAKE OUT FLAP AND REMOVE THE TUBE.... NOT BY THE VALVE, STUPID!


CLEAN UP INSIDE....
CLEAN OUT BETWEEN TREADS, PROBE CUTS, GASHES.
NOW, IF ALL DAMAGE IS TAKEN CARE OF....LET'S PUT IT BACK TOGETHER AGAIN, BOYS!
CLEAN THE WHEEL RIM AND BLOW A LITTLE AIR INTO TUBE...AND SHOVE IT INTO TIRE!
RUN Y'R HAND AROUND IT...TO SMOOTH IT OUT.
...GETTING IT BACK ON THE WHEEL WILL BE EASIER IF YOU SOAP THE BEAD A BIT!! PUT IN FLAP!
KEEP WHEEL LOCK RING SIDE UP...AND REMEMBER...TO LEAVE THE VALVE STEM UP SO'S IT'S NOT COCKED!


NOW PLACE LOCK RING.
SPLIT IS OPPOSITE VALVE STEM
SEAT LOCK RING DOWN PROGRESSIVELY WITH THE TIRE TOOL... USE HOLES IN WHEEL FOR PRYING.
NOW TURN TIRE OVER SO LOCK RING IS SAFELY DOWN... INFLATE TO 70 LBS... DEFLATE AND INFLATE AGAIN ...SO'S TUBE WILL POSITION ITSELF BETTER.
HUBS CLEAN? AND WHEELS ON? NOW GIMME THEM NUTS!
YOU CLEAN 'EM... PUT A BIT OF OIL ON 'EM???
YUP!
TIGHTEN FIRM, UNJACK AND FINISH JOB... TIGHTEN AGAIN IN 100 MILES.
AND THE VALVE CAP'LL SEAL AND KEEP OUT DIRT, MOISTURE, AND...???
WHAT'S THE MATTER, JOE?
HE DINT CHECK THE TUBE FOR A SLOW LEAK.
...YA DINT ASK ME!

# ARMAMENT



## AT EASE

That's the way we want to put'cha, Lad—right at ease. That's the why for changin' the deal on the way PS Magazine handles the straight scoop on armament, fire control, sights and what-have-you.

Since anything in Fire Control has no other job except to help you control and aim the hitting power of a weapon, we're going to let the Armament Section include **everything**—weapons and the ways you aim 'em—everything you need to deliver fire power, accurately and quickly.

That includes the deal from the time you lay that sight crosshair on the target to the instant the round hits home and the fuze lets go.

So you guys what handle the radar, directors, 'scopes and sights—we didn't forget you. Your gear will just be tied right in with the weapons it serves.

### FIBERGLAS PATCHING KITS

Relax, Boys—help is on the way. Some of you have been screaming for a little dope on how and where you get the stuff for patching the fiberglas dome of the M33's acquisition antenna.

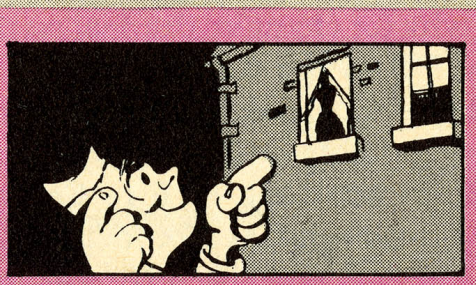
A kit for this purpose has been devised by Western Electric and is to be included with new fire control units or added to old outfits later.

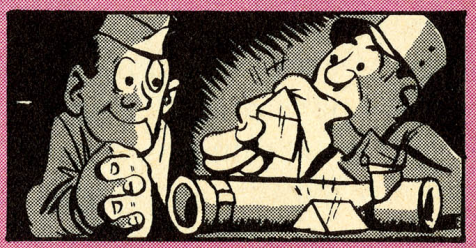
When you do manage to get yours, you'll find it will include: 1 roll of 1″ wide #5 tape (Stock No. Y004-8175704); fiberglas cloth 18″x36″ (Stock No. Y004-8019497); 5 tubes of Bakelite C-8 Resin BRR-18795 40 grams (Stock No. Y004-8175705); 5 tubes Bakelite C-8 Resin BRR-18793 10 grams (Stock No. Y004-8175706); 5 unwaxed 4 oz paper cups (Stock No. 55-C-16744); 2 sheets polyethylene film, .003″ thick, 48″ x 18″ (Stock No. Y004-8019495); 36 square inches of rags or equivalent pieces; 5 pieces of aloxite paper, 280 mesh "wet or dry" 4″ x 5″; and 15 tongue depressors (Stock No. 3-245-500).

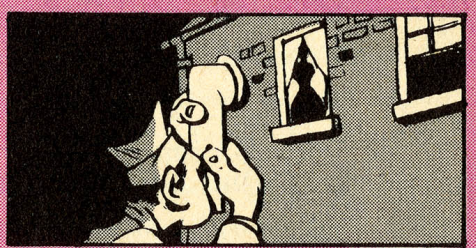
More later on these...

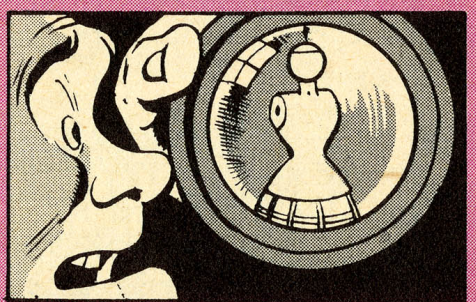
*Jeepers Creepers!*
*Where'd 'Ja Get Those Peepers...*

# You've got to be sharp to look sharp









An eye for an eye—that's what optical instruments are.

The naked eye can only see so much and so far. There's sighting equipment like binoculars, telescopes, periscopes, range finders, aiming circles, and sometimes even keyholes to see things that you can't see with the naked eye.

The big lookers in an optical instrument are pieces of glass—but not ordinary glass. It takes great care to make it do what it does (and greater care to keep it that way).

It's this glass that makes the babying of your sighting equipment so important. It's used to make lenses and prisms reflect and magnify a distant object. Their magnifying power is the number of times an object is enlarged—like with a 6-power glass, you can sweat something out 600 yards away and it'll look the same as if it were 100 yards away observed with the naked eye.

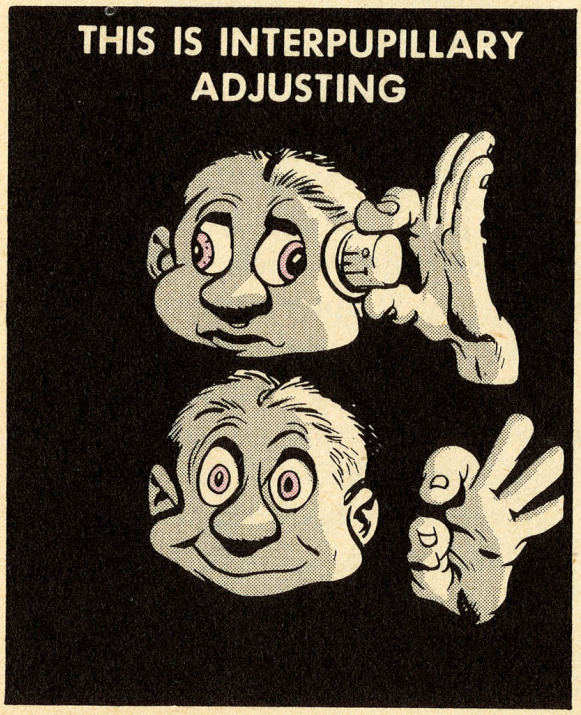
## HOW TO USE 'EM

Basically, most lens and eyepiece adjustments are the same for all looking devices. Let's look into how to look out.

In the case of binoculars or field glasses, the way you hold them is just as important as having them adjusted right.

Hold 'em in both hands and press to your eyes lightly. If you press them to your eyes too hard, body tremors will be transmitted to the binocs. Your picture will dance all over the place.

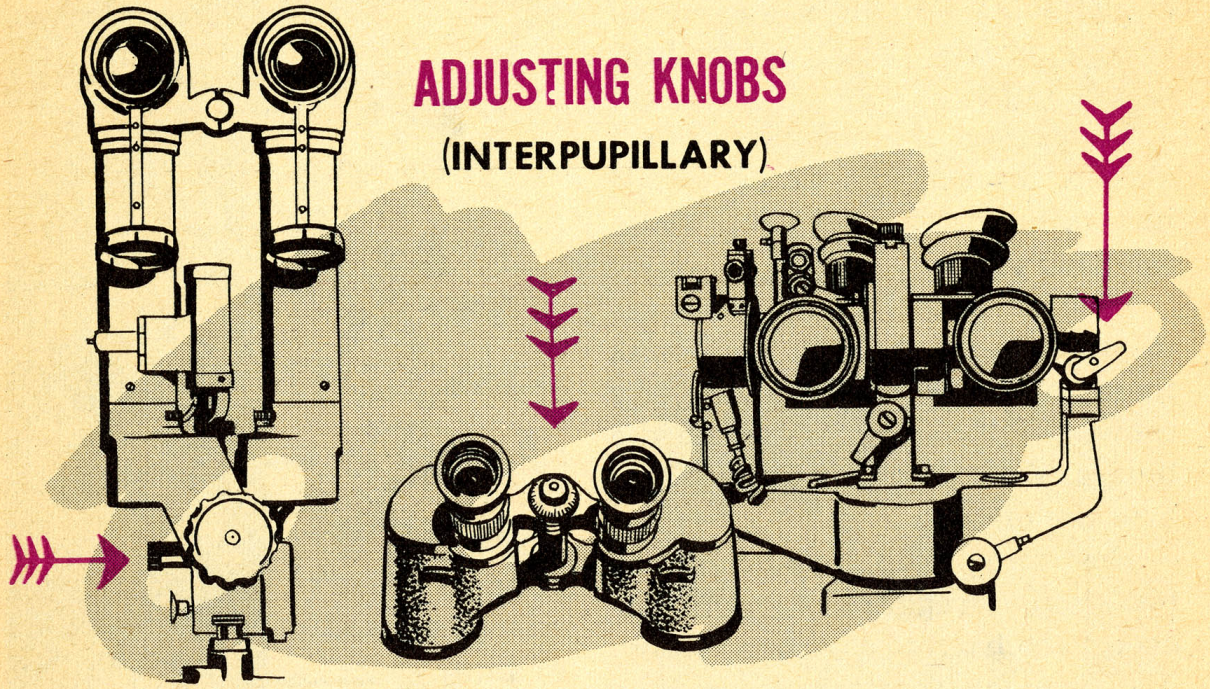
Best thing to do, if you can, is to rest your draggin', waggin'... or even stretch out to a prone position. This way you've got your knees or the ground to rest your elbows on. And that gets rid of 'ole shaky.



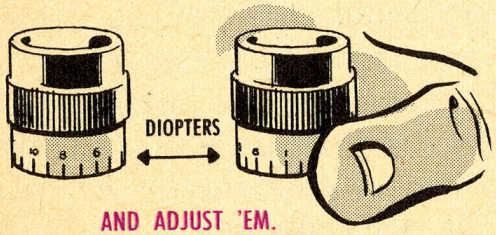
## INTERPUPILLARY ADJUSTMENT

So's you get a good look at what you're trying to see, you've got "interpupillary adjustment." Don't let that throw you. It's an adjustment, on binocular-type instruments, for the distance between the eyes—which is different for every guy. The right adjustment here will get you one round field of view.

Most binocular-type instruments (binoculars, range finders, BC telescopes, etc.) have either a hinge or screw-type adjustment for changing distances between eyepieces. This distance is measured in millimeters which you'll see numbered, between 58 and 72, on a flat scale or a knob. The average setting is 64mm (2½").




## FOCUSING OR... DIOPTER ADJUSTMENT



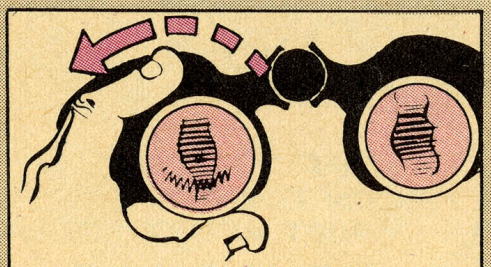

What's that? If you've heard of the word "focus," or maybe the term "bounce your eyeballs on that," you've got it. Every eye has a different strength which varies from day to day. Diopter adjustment corrects for these variations.

Maybe you're nearsighted. So, focus for each eye to take care of the nearsightedness. Each eyepiece is focused by itself. Put the binocs (or what have you) to your eyes. Look thru the eyepieces, both eyes open, and place a hand over the front of one scope.

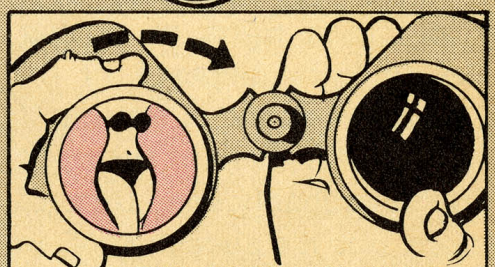
# HOW TO DO IT

SUPPOSE (HAPPENS OFTEN) YOUR LEFT EYE SEES BETTER THAN YOUR RIGHT . . .

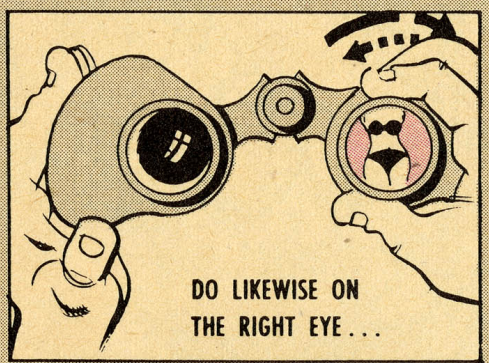
FOR MONOCULAR OR BINOCULAR TYPE.



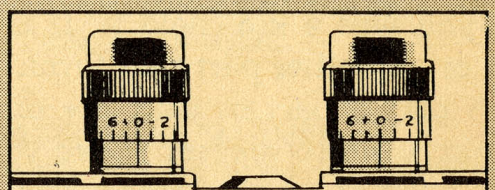
STARTING WITH THE LEFT EYE YOU TWIRL (COUNTERCLOCKWISE) THE FOCUSING NUT ALL THE WAY.



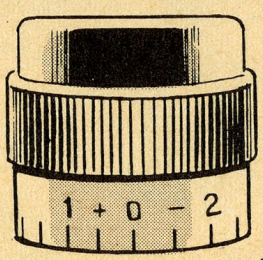
THEN, SLOWLY BACK AGAIN UNTIL Y' SEE A SHARP IMAGE . . . AND STOP.



DO LIKEWISE ON THE RIGHT EYE . . .

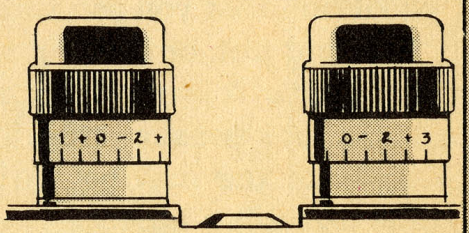



NOW, **HOLD IT** AND LOOK AT THE LITTLE NUMBERS UNDER THE FOCUSING NUT. THIS IS THE DIOPTER SCALE.




FOR NORMAL EYES . . .

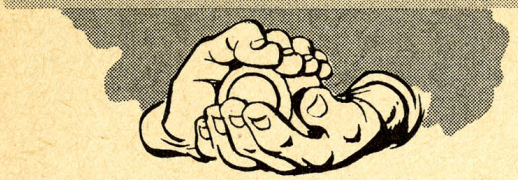
THE MINUS AREA FOR THE NEARSIGHTED




THE READING YOU GOT IS YOUR PERSONAL FOCUS

**AS A MATTER OF FACT, BETTER JOT IT DOWN. YOU'LL NEED IT . . .**

# TAKE CARE OF 'EM

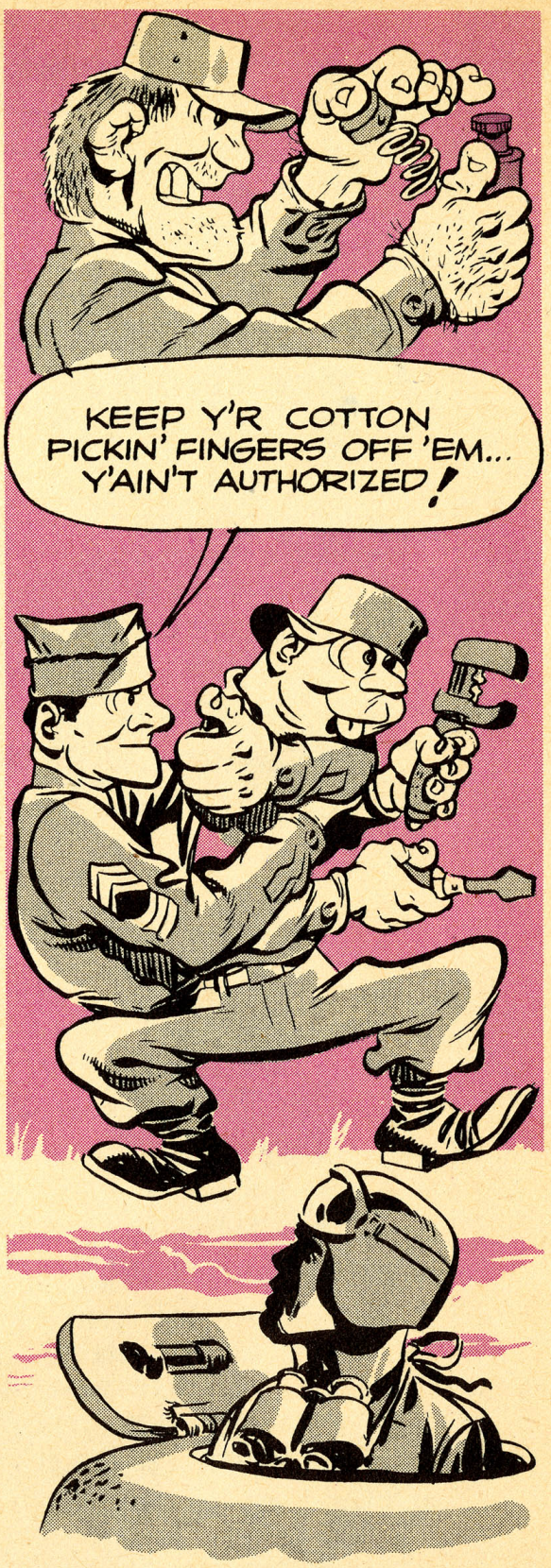


Holding them right, or setting the interpupillary distance, or focusing them won't mean a thing if you don't care for them in the right way. You've probably been thru all this before, but it's always good to be refreshed—so, come to the party.

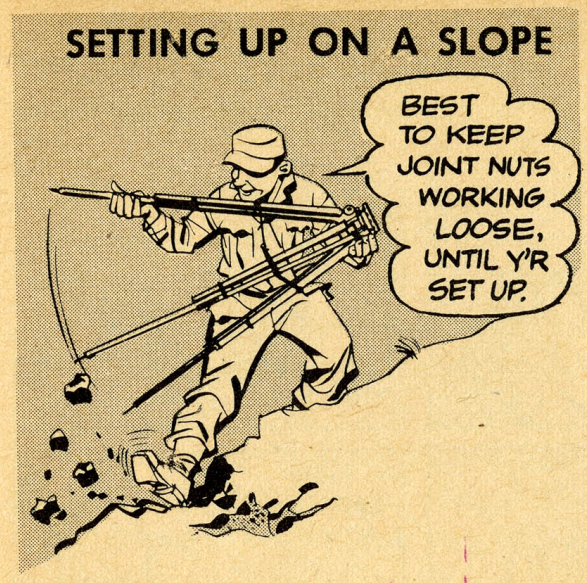
If you've still got the urge to take everything that you get apart—like when you was a kid—hold it. If a screw, or any other part that turns, doesn't play a part in your use of the instrument—better leave it alone. Playing with things you shouldn't can really mess you up.

When adjusting binocs, sights, 'scopes, or other peepers, to suit the distance between your eyes, or your vision, you'll find that you can turn a knob, focusing nut, or hinge just so far and that's it—you've hit a stop limit. So, for gawsake—**stop.** If you try to force the moving part, you'll come up with a bust.

If you have binoculars hung around your neck ('specially if you're a tank commander), try shortening the neck strap by tying a knot in it. This way the glasses will swing across the chest and not around the bread basket where they're sure to get banged.

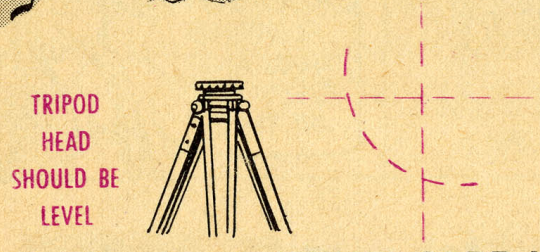



**YOU'VE GOT TO KEEP 'EM SHARP UNDER ALL CONDITIONS.**

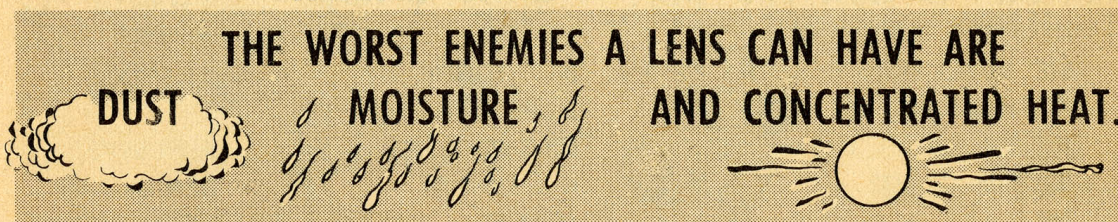



When you're working with clamping or leveling screws, snug them up—careful-like. If you try to get them too tight, you might strip or bugger those threads.

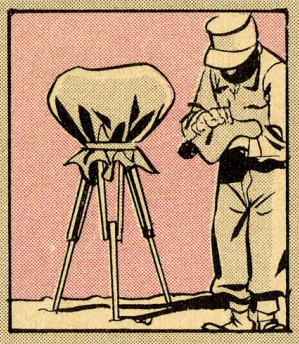
In setting up a tripod, spread its legs and then embed the feet in firm ground. On a tripod with legs you can extend, adjust them for length so the head of the tripod is level. In setting up on a slope, put two of the legs on the downhill side. Keep the tripod clamping lever or nuts slightly loosened until the tripod is in the right position and then snug 'em up. Make sure the extension leg clamps are tight.

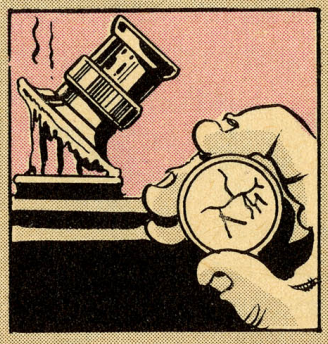



## TAKING CARE IN THE HOT 'N WET



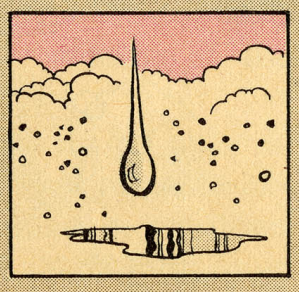

KEEP 'EM COVERED WHEN NOT IN USE . . . IF IT GETS WET, DRY COMPLETELY BEFORE PUTTING 'EM AWAY . . .

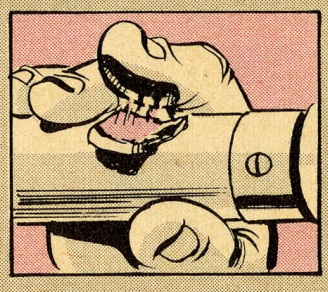




UNLESS YOU'RE ACTUALLY USING IT, DON'T POINT 'EM DIRECTLY AT THE SUN . . . RAY HEAT CRACKS RETICLES OR LOOSENS CEMENT HOLDING LENS TOGETHER.

AFTER USING, WIPE DRY WITH THIN FILM OF OIL . . . NOT TOO MUCH; OIL PICKS UP DUST AND SAND WHICH CAN SCRATCH A GLASS SURFACE.

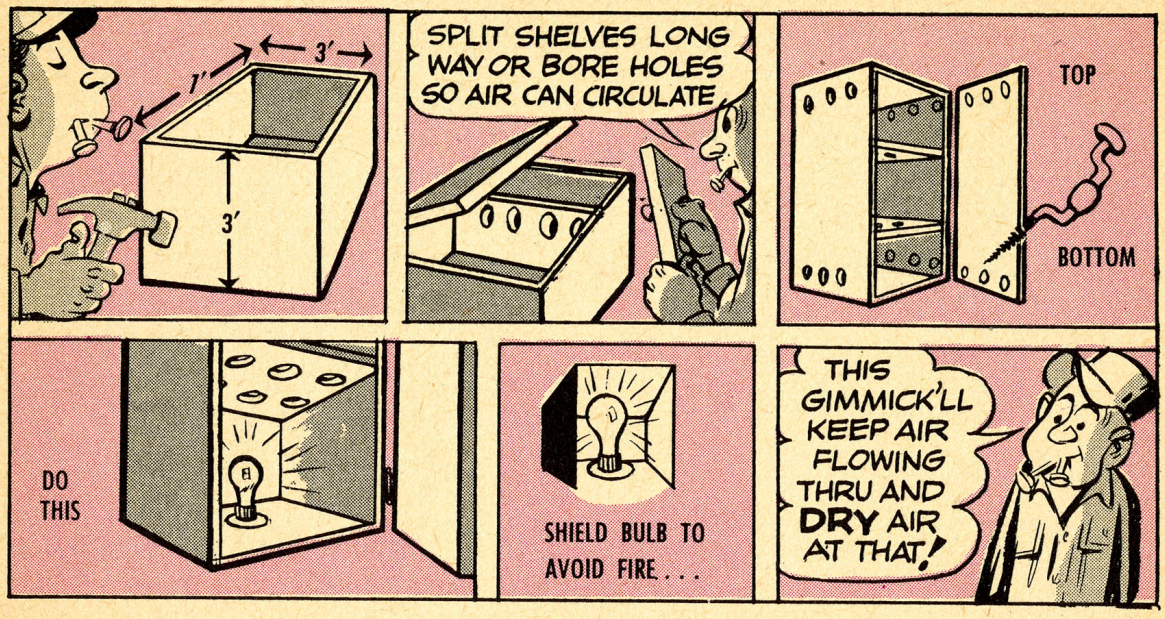




WATCH OUT FOR HAND PERSPIRATION . . . SWEAT CONTAINS ACID . . . AND ACID STARTS RUST!!

*LIGHTLY OIL SCREWS AND PINS WON'T RUST AND FREEZE IN PLACE!

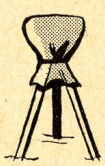
## BUILD A DRYLOCKER TO KEEP OUT FUNGI OR RUST IN HOT, WET CLIMATES WHERE THEY'RE ALWAYS AT WORK



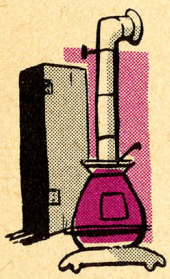

## TAKING CARE IN COLD AND DAMP

KEEP MOVING PARTS FREE FROM MOISTURE, BUT NOT TOO MUCH OIL—IT GETS THICK

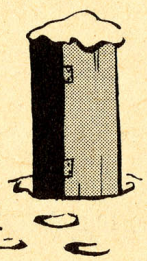
DON'T BLOW ON A LENS WHEN IT'S BELOW 32° IT'LL FROST OR CRACK IT . . .



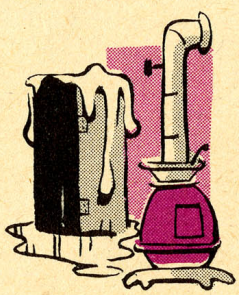
LEAVE 'EM OUTDOORS IF Y'R USING THEM OUTDOORS, BUT WELL COVERED



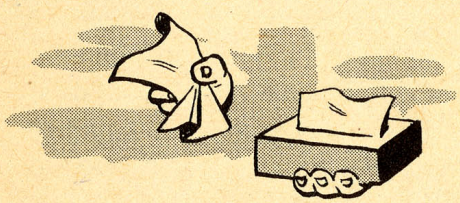
IF YOU HAVE TO BRING IT INDOORS, USE A TIGHT BOX LINED WITH HEAT CONDUCTING STUFF (LIKE ALUMINUM FOIL).



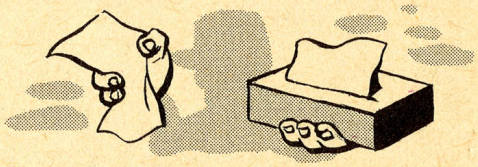
BEST TO KEEP BOX OUTDOORS SO IT'S THE SAME TEMP. AS THE INSTRUMENT.



WHEN YOU BRING IT INDOORS, LET IT COME TO ROOM TEMP. BEFORE OPENING IT.



WHEN THERE'S FOG, PUT ANTIFOG COMPOUND (STOCK #51-C-1553) ON THE OUTER SURFACE WITH A CLEAN TISSUE.



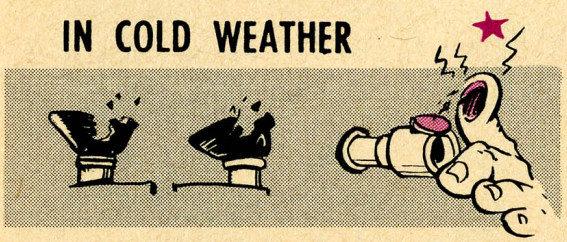
LET IT DRY . . . THEN TAKE ANOTHER **CLEAN** TISSUE AND POLISH THE LENS LIGHTLY.

# NOW *you clean 'em*

When it comes to cleaning optical parts, the right way is the only way—and that takes a lot of care. But, the care is worthwhile when you pick up an instrument that's all set to go.

Clean eyeshields occasionally with mild soapy water—rinse 'em, dry 'em, and then dust 'em lightly with talcum. (Baby powder does a good job.) Makes 'em smooth as a baby's...

## ...AND BE CAREFUL IN COLD WEATHER



## RUBBER GETS BRITTLE... THEN SNAP, CRACKLE, POP!

Every fingerprint, grease smudge, or dust particle has got to be removed from the glass surfaces of your optical instruments. Keep the exposed surfaces of the lens clean and dry to prevent (or help stop) corrosion or etching of the glass.

If anybody tells ya it's okay to use polishing liquids, pastes, or abrasives to polish lenses or windows —it's for the birds. You gotta keep your big, dirty, sweaty fingers off the glass.

To get dust off the glass, use a camel's-hair artist brush (Stock No. 38-B-670). Brush the glass lightly with the brush. Every once in a while rap the brush handle against something hard to knock out any particles of dust that might cling to the hairs.

To keep the brush clean when it's not used, wash with alcohol and stick it in an empty corked bottle with the brush handle stuck thru the cork—like the dauber in a bottle of shoe polish.

To get at oil or grease that might've gotten on the lens, there's ethyl alcohol (Stock No. 51-A-1964) to do the job. Apply the alcohol to the lens surface with a lens swab (sliver of wood with lens tissue paper, Stock No. 53-P-14104, wrapped around one end). That's to keep too much alcohol from flooding the compound lens and dissolving the cement.

Coated lenses can take a limited amount of cleaning, but if you rub them too much, it might take off

the coating. Coating is the bluish tint you see lookin' in an instrument. It cuts down loss of light caused by reflection. If you rub or scratch off some of the coating, be careful that no more of it is removed. What coating's left is effective, and it's better than none.

Always use lens tissue paper to wipe off moisture or excess alcohol. Fold paper 2-to-4 times so oil from your skin won't seep thru. Rub the lens surface gently, in a circular, polishing motion, working from center of the lens toward the outer edge.

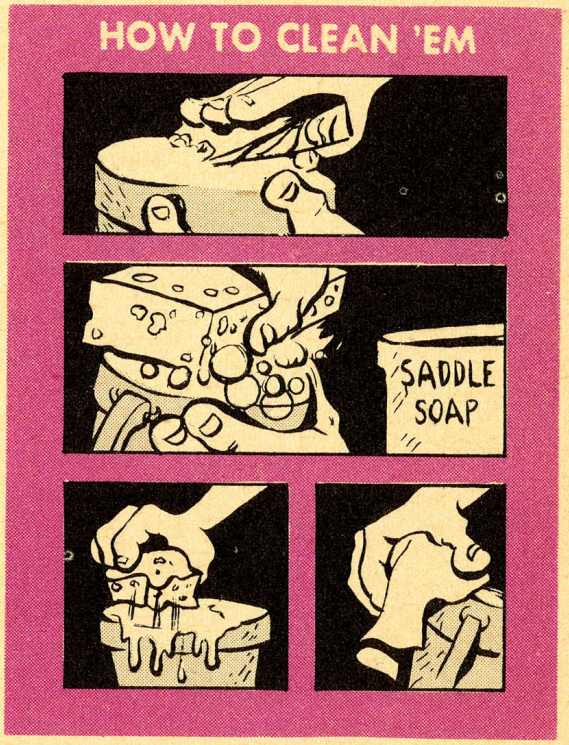
Keep changing the paper to prevent grit and dirt that you're taking off from scratching the lenses. After you clean the lenses, keep your fingers off them. And if you're not going to use 'em right away, wrap 'em in clean tissue before you put them away.

## PAMPER THOSE CASES

Taking care of the leather cases in which you tote your instruments is easy if you keep after them. Most of the cases are russet or fair leather which means they take attention.

When you clean 'em, you remove all hardened grease with a sliver of wood. Wash 'em with a cellulose sponge (Stock No. 41-S-4D37), soaked with a heavy lather of saddle soap (Stock No. 51-S-1775, QM issue), and clean with warm water. Leather can't stand hot water or soaking. After the wash, rinse the leather with clean water and rub it down with a clean cloth until it's dry.

A piece of glass or a knife for the scraping job only causes more trouble. Those little cuts or nicks you make will get bigger as you use the leather. Soap that has a strong alkali content will ruin leather, too. Leather left to dry in the hot sun will get brittle and crack.



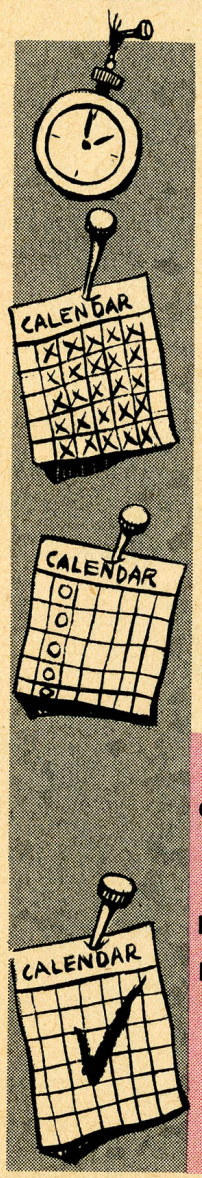

Washing leather takes away most of the lubricating oil. To put this oil back into the leather and keep it from getting hard and brittle, rub a soft cloth moistened—but not saturated with neat's foot oil (Stock No. 14-0-307, QM issue) over the surface. Use only a light

coat of oil **after** the leather is dry. End up by wiping off excess oil and rub the leather to a polish.

If your leather has been treated with mildew-preventive leather dressing, have it retreated by your Ordnance maintenance men after the washing.

For dirt inside the case, get a sash tool brush (Stock No. 38-B-3325) and give it a periodic brushing. You can also use compressed air to blow the dust or dirt out of the case. Keep the inside of the case clean or dirt'll get in the optical elements or delicate mechanisms.

## NOW YOU KNOW THE RIGHT CARE AND HANDLING—HERE'S HOW OFTEN YOU DO IT.




### ROUND-UP ON OPTICAL INSTRUMENTS

**Daily**

Outside surfaces .....Clean.

**Weekly**

Carrying cases ....Clean inside and out.

Exposed mechanical parts .....Tighten external screws or nuts, report missing parts to Ordnance maintenance.

Tripods.....Oil ball and socket joint, but don't take apart.

Hinge pins .....Oil lightly, wipe off excess.

**Monthly**

Optics .....Check for dirt, cracks, frost patterns, or fungus.

Eyeshields .....Clean.

Focusing mechanisms.....Check for looseness or binding. Report it to Ordnance maintenance.

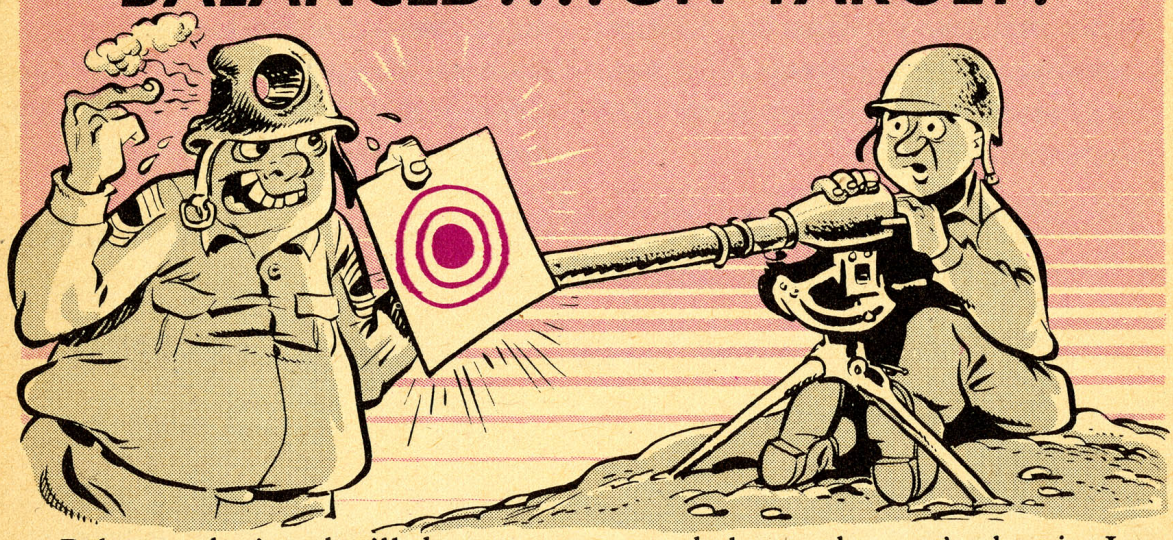
Hinge joints .....Open and close. If binding is loose, report to Ordnance maintenance.

Sharpness of reticle and image .....Focus the eyepiece of the reticle side on a good target. Image and reticle should both be sharp at the same diopter reading. If not, report to Ordnance maintenance.

Optical system—double vision .....Hold the instrument steady and level. Focus on a good target. Close either eye for a second; then open it quickly. If you have a double vision, the image will blur apart and then together again, quickly, as the eye accommodates for the defect—tell Ordnance maintenance.

Is Your 75mm Recoilless—

# BALANCED?...ON TARGET?



Balance—that's what'll keep your 75mm (M20) Recoilless Rifle recoilless and on target.

Balance is taken care of by the gas that's blown to the rear and out thru holes in the vent-bushing and breechblock.

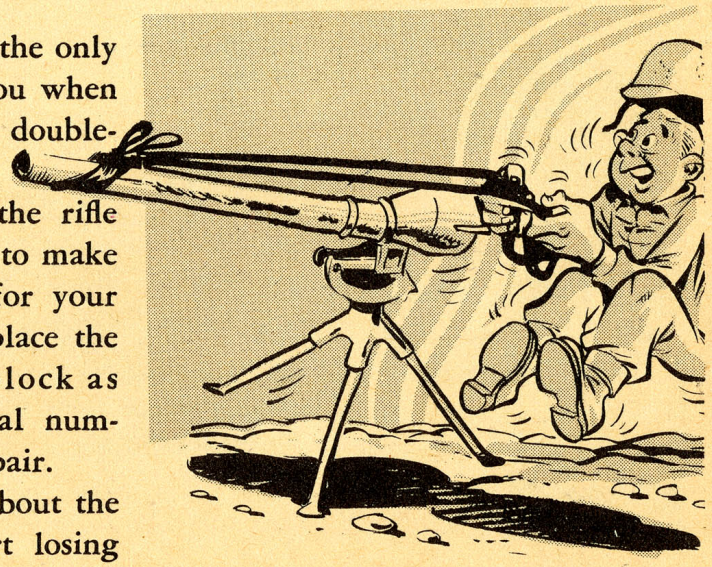
Erosion by the hot gases causes the holes in the vent-bushing to get bigger. That lets too much gas out the rear of the rifle and makes it move forward. Then, she's out of balance.

Your good eye or "feel" is the only equipment you have to tell you when this balance is giving you the double-cross.

If forward movement of the rifle when firing is strong enough to make the rifle unstable, it's time for your Ordnance support unit to replace the vent-bushing and breechblock as matched parts. Matched serial numbers will show you they're a pair.

You don't need to worry about the vent-bushing unless you start losing your balance—the gun's that is. Loss of balance will show up any time after 500 rounds under normal use.

When Ordnance personnel replaces the original bushing, be sure there's a number "2" stamped somewhere on the replacement. When number two is replaced, the replacement gets a number "3" stamp. When the third's taken out, the new one gets number "4"—here's where you stop.



The rifle's gotta be close-checked by a rebuild depot after using four vent-bushings—the original and three replacements.

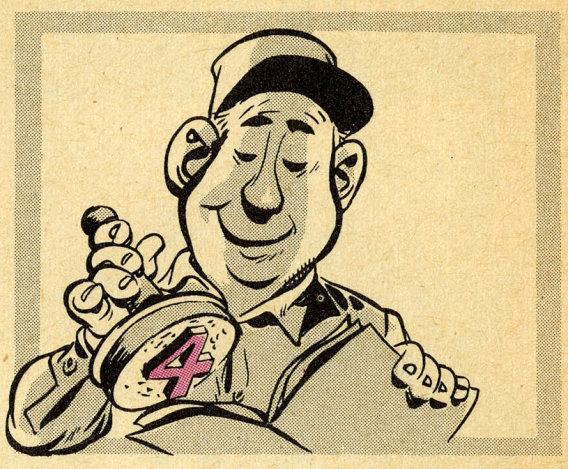
About the only time you'll have a backward movement is after a new vent-bushing is put in. The movement should only be slight, and it'll balance out as soon as the holes in the vent bushing wear to a certain point.

Might be a good idea to keep your eye away from the sight for the first round fired after a new bushing's been installed or you might have to do some explaining about a shiner.

## FOUR—YOU GET NO MORE

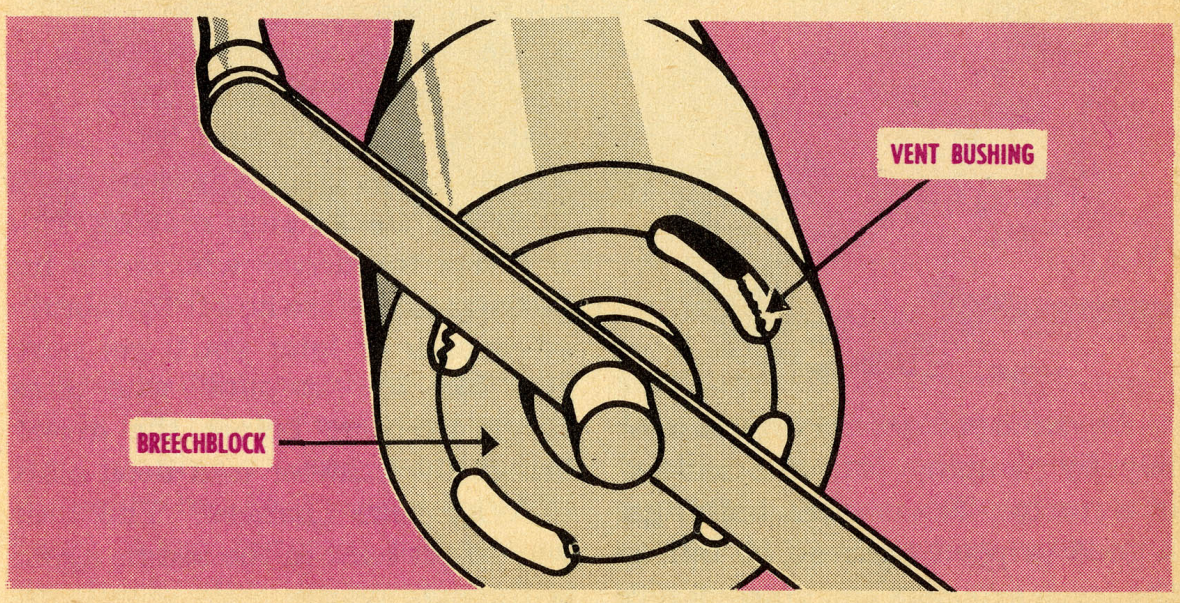
When you're having a new vent bushing installed in your M20 Recoilless Rifle and the old bushing doesn't have a 1, 2, 3, or 4 stamped somewhere on it, it would be wise to do this:

Check your gun book for the total rounds fired by your rifle and find out

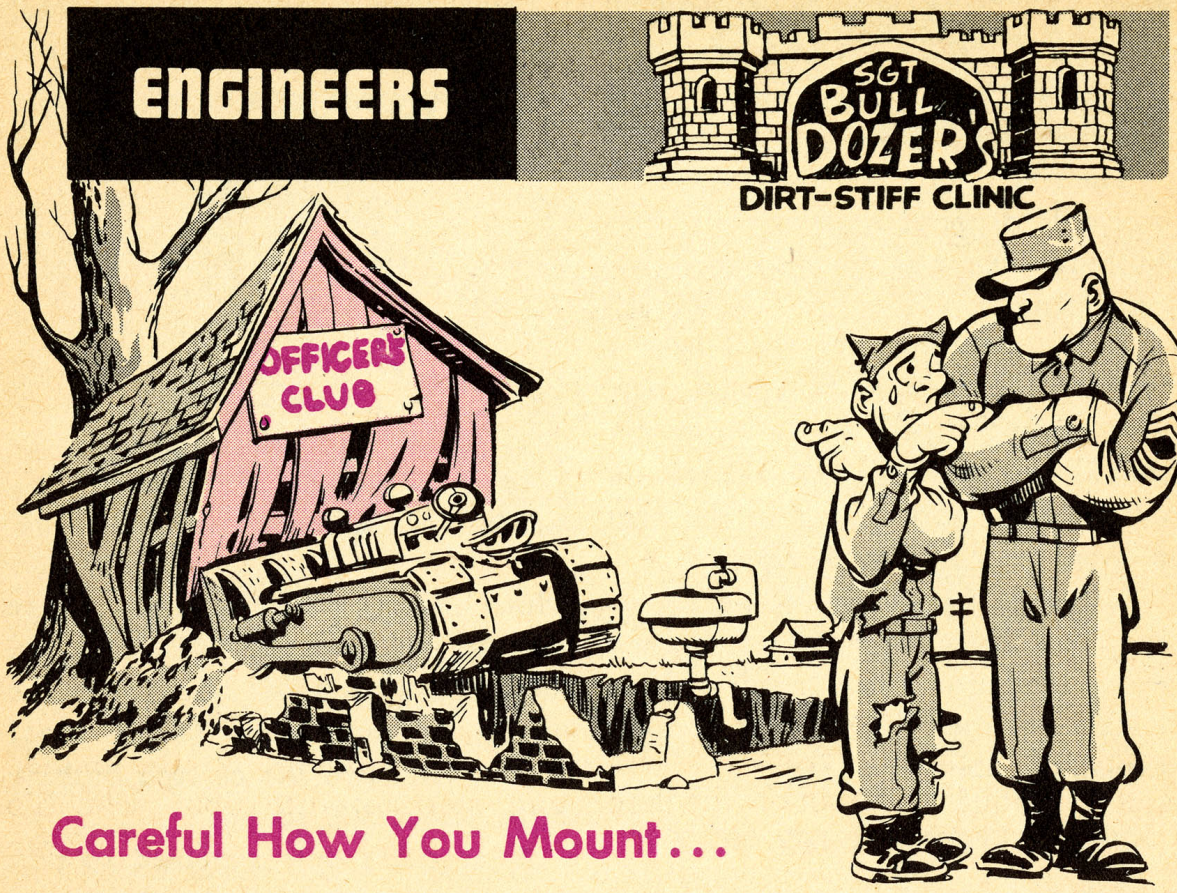



which bushing you're on. For instance—if the gun book says 1600 rounds, there should be a "4" stamped on the one you're putting in. This is based on the estimated life of each bushing being about 500 rounds.

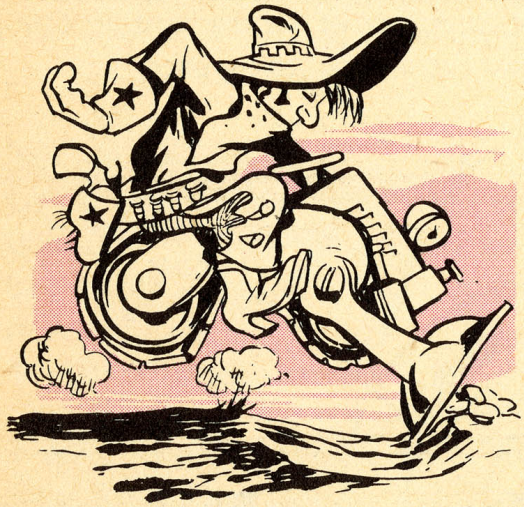
Your rifle's only supposed to take 4 bushings, (the original and three replacements). After No. 4 bushing's shot its wad (rounds)—that's it. The rifle goes out of service and to Ordnance for a good going-over.



# ENGINEERS




## CATTIN'S NO FUN WHEN YOU'RE HURTIN'

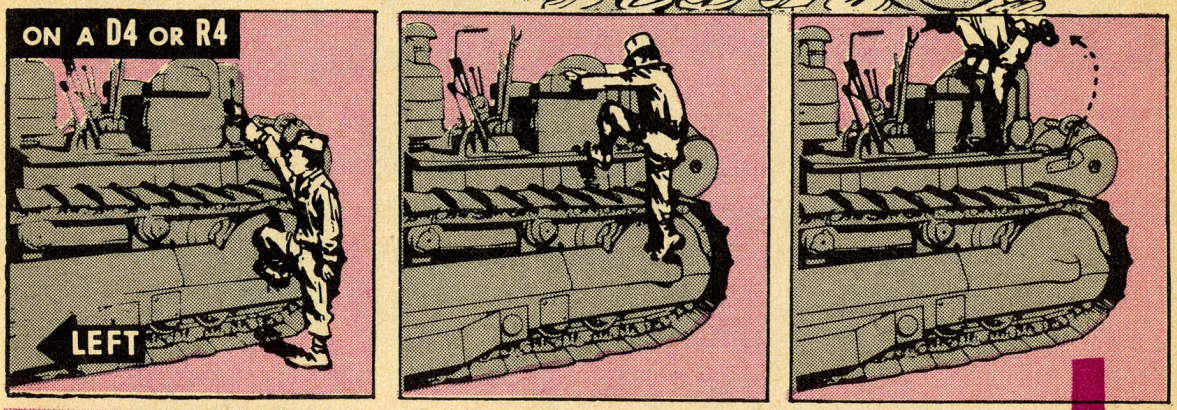


Anytime you get the urge to cowboy by "leaping into the saddle" of a tractor, Texas style, better get a good grip on yourself. A fall on the track grousers can gouge a nice hunk of meat out of your leg, or split a kneecap.

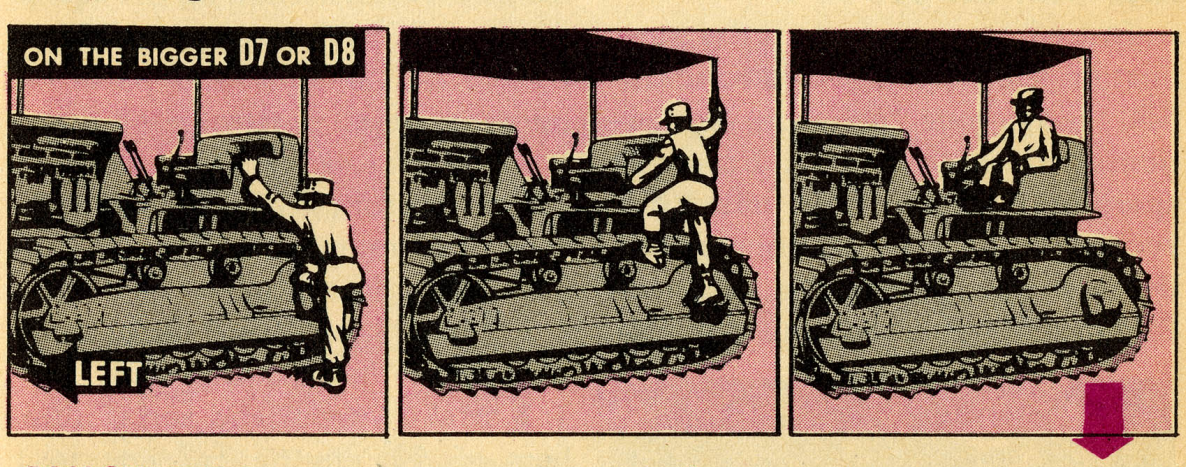
The wise cat-skinner moves slowly, looks before he steps, and grabs hold of something solid when mounting his charge. And he waits until the tracks stop moving. But if you're the driver who starts his purring cat before he's fully mounted—sooner or later you'll get hurt. Just like the "co-pilot" who likes to get-up-there before the driver brings the crawler to a dead-stop.

Why take chances? The best way to get back in the saddle again is the safe way.

# HOW TO MOUNT...
## by the numbers




For the D4 or R4 Caterpillar, when you mount from its left side, put your right foot on the step (or shield) that covers the idler bearing. Then, grab the seat-arm with y' r right hand and the nearest steering lever with the left. Now, put your left foot on the fender and step up into your seat. To mount from the right, do the same except switch sides for the hands and feet



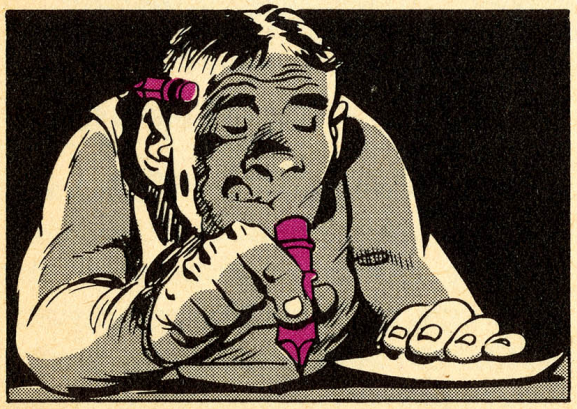

To mount a larger cat, like the D7 or D8, put y'r right foot on the step (or shield), and take hold of the seat's handrail with your right hand. Then, put your left foot on the track, step up and grab the seat's arm-rest with y'r right hand. If it has no handrail but there's an awning over the seat, grab the awning's up-hold. Now give yourself a final boost—upsey-daisy—and you're in.

# HOW TO GET THOSE ENGINEER MANUALS

When some low joe has laid his meat hooks on your favorite manual, or you need to requisition the lowdown for your equipment, here's how to do it:

First, see if the publication you want is listed in the Engineer grouping of SR 310-20-4, "Index to Technical Publications," or SR 310-20-25, "Index of Supply Manuals—Corps of Engineers." If it is, the publication can be requisitioned through the AG's publications supply channels in accordance with SR 310-90-1.

But what can you do if the publication you want is not listed in the SR? Sing your blues by requisitioning through normal Engineer spare-parts supply channels. Your requisitions will be forwarded through channels to the Engineer Supply Officer, Columbus General Depot, for supply action. However, don't requisition general commercial catalogs covering hardware, building material and other general supplies, because they will not be furnished.



Occasionally, you may need additional help. If TAG or the Engineer spare-parts supply system cannot furnish you with the desired publications, write to the Chief, Spare Parts Supply and Stock Control Office, PO Box 119, Columbus 16, Ohio, requesting technical information on the equipment. SPSSCO may be able to furnish an informal list of parts and information on parts availability.

Whenever or wherever you sing your blues for publications or technical information, be sure to furnish this information:

a. Make, model, and serial numbers of the basic equipment.

b. Make, model and serial numbers of the engine (or engines) powering the basic equipment.

c. Make, model, and serial numbers of major components of the basic equipment such as pumps, generators, compressors, light plants, crane truck carriers, and motors.

## LUBE ORDER CHANGE

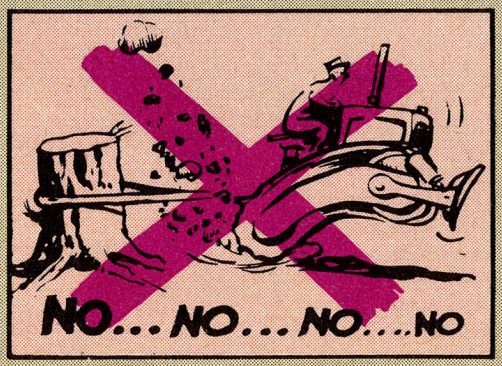
If you have a 60-CFM gasoline-driven trailer-mounted air compressor, better hang on to your LO 5-5104 (21 July 52) because if you lose it you'll get no more. DA Circular No. 108 does away with it because that compressor is being deleted from the Engineer supply system.

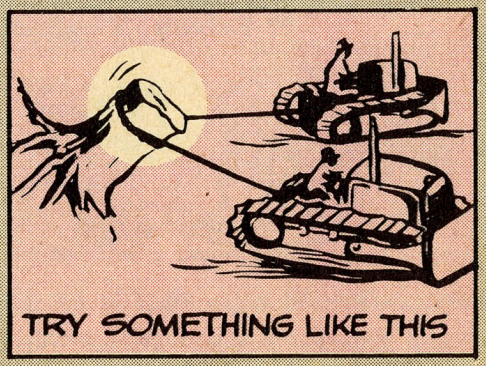
If you do requisition LO 5-5104 in the future, you'll get a new LO which is good for the 4-CFM, Model WG211-XP, Wheelbarrow compressor, but is not good for the old 60-CFM job.

Change your SR 310-20-4 now so everybody gets what he wants.

# LOADED—PLUS

## *ARE YOU HUMPIN' FOR A RUPTURED CAT—*




If you gotta, break the load down, or use two tractors, or rig up a system of pulleys. But the best idea of all is to stay away from the rupture jobs whenever you can and **stick to loads under its maximum.**

# CONTRIBUTIONS

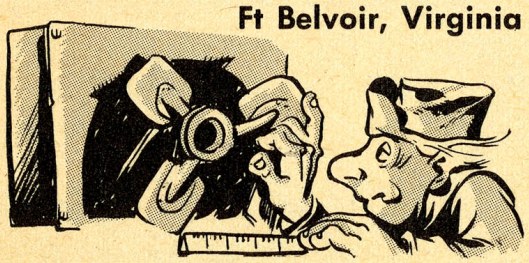
## TIGHT PLACES AREN'T FUN

Dear Editor,

Our M135 fan belt is a humdinger to replace—the space around the fan shroud is so tight the belt won't go on.

We figured out a quick-fix: Bend the radiator fan-shroud bottom forward about ¾". Then the fan belt can clear the end of the crankshaft-pulley retaining-nut. There's no danger of the fan hitting since there is ample clearance between the ends of the fan blades and the inside diameter of the shrouds.

**71st AAA Bn Motor Pool**
**Ft Belvoir, Virginia**



*(Ed Note—You'll only find your fix needed on trucks below Serial No. 6162. Later models have had their fan shroud assemblies revised to get rid of the squeeze. When bending that shroud, bend no more than ¾" or else you'll be in trouble.)*

## SMALL ARMS PARTS BOX

Dear Editor,

Here's a small arms spare-parts box our unit armorer-artificer made up for the organization in the field ( Fig. 1 ).

It was made of scrap lumber with hinges and hasp from an ammunition box. The five drawers are divided into various sizes of compartments to fit the different parts. In garrison, stock records are kept on the bin cards shown in the file drawer on top of the box. In the field, these cards are slipped into the smaller section shown in drawer "E," and go right with the parts. This

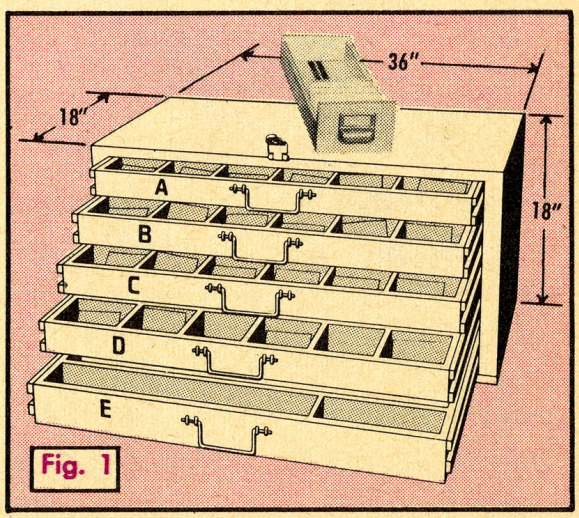


Fig. 1

way, when we return to station, the records are up to date, and reordering of parts is easy.

The size and number of drawers and compartments needed will depend on what sort of weapons you're supporting.

**J. S. N.**
**Camp Roberts, California**

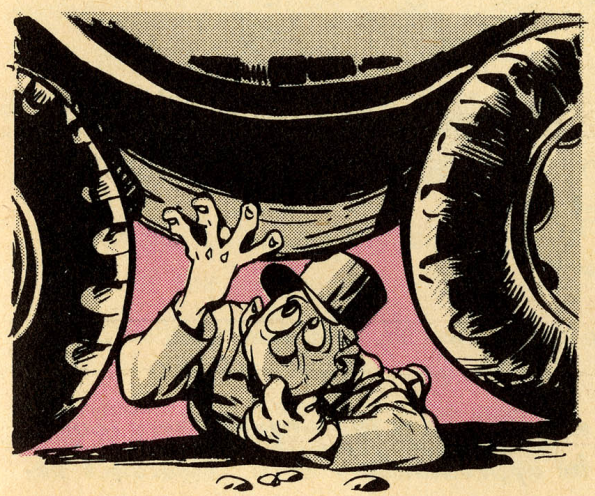
## REMOVABLE CARGO-BEDS

Dear Editor,

Sometimes in Korea we hauled so much POL, bombs, napalm and cement that we had to put new floor beds on all the trucks.

Now, when we get another truck from Ordnance and plan to do work like that, we put in a second floor to begin with. We make the floors of 2x6's —and removable. So, when the truck has to go back to routine duty, we take 'em out.

**Sgt Frank Archer, Jr**
**APO 500, San Francisco**



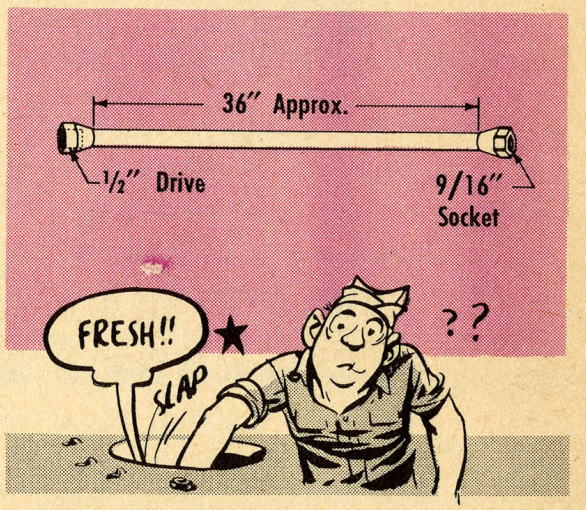
*(Ed Note—It's a darn good idea, and saves taxpayers' money, too. Only thing—make sure they're removable.)*

## LI'L JOE WRENCH

Dear Editor,

We made up a special wrench for removing and replacing the Wisconsin Auxiliary Engine in our M46 and M47 tanks. Here's how it's done.

Use a 9/16" socket brazed to a 36" length of steel rod, say ½" in diameter. On the other end braze any worn out or cracked socket with a ½" drive.




With this wrench it's a simple matter to reach down around the Li'l Joe and get at the mounting capscrews. When replacing the engines, stick the capscrew into the socket with heavy grease and slip it into the hole that way. Of course, the same job can theoretically be done by connecting three 10" extensions, but the best of these is wobbly. If you lose a capscrew, to say nothing of a socket and one or more extensions, down inside the hull, it's a heck of a job getting 'em back out again.

**84th Tank Battalion**
**Ft Knox, Kentucky**

*(Ed Note — That's a slick trick. It'll save a lotta time and hot words.)*

## M135 REAR AXLE PULLER

Dear Editor,

Do you want to know what we did to save all those M135 rear axles from hitting the scrap heap? We made a puller from odds and ends lying around the yard. This put a stop to people chiseling the cone wedges to bits and eventually ruining the axle when they wouldn't pop out after hitting the axle lug with a hammer. Here's our gimmick in pictures.

**WOJG J. J. McCafferty**
**Ft Sill, Oklahoma**

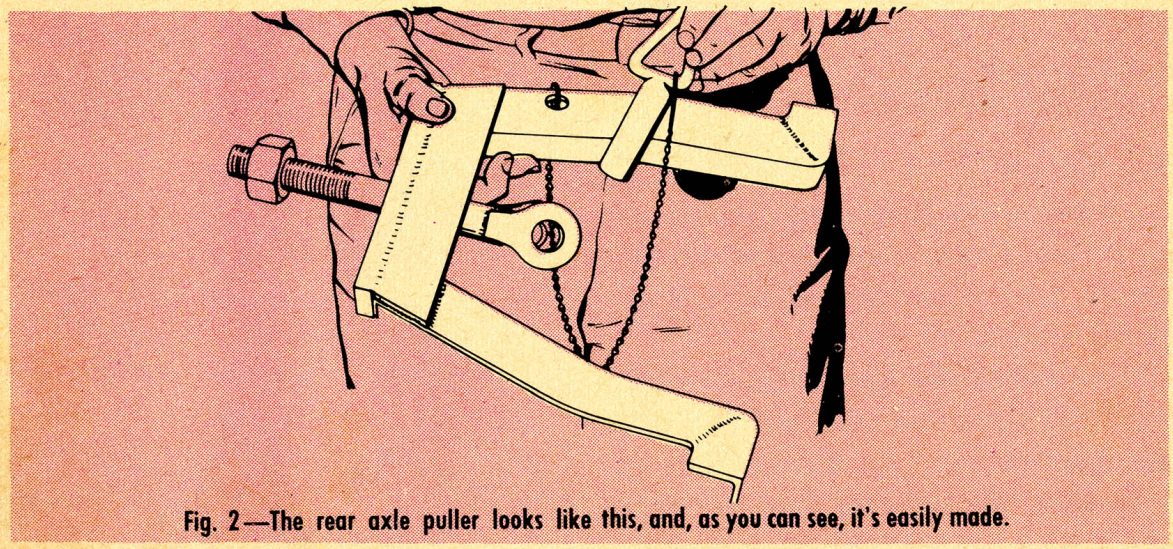


Fig. 2—The rear axle puller looks like this, and, as you can see, it's easily made.

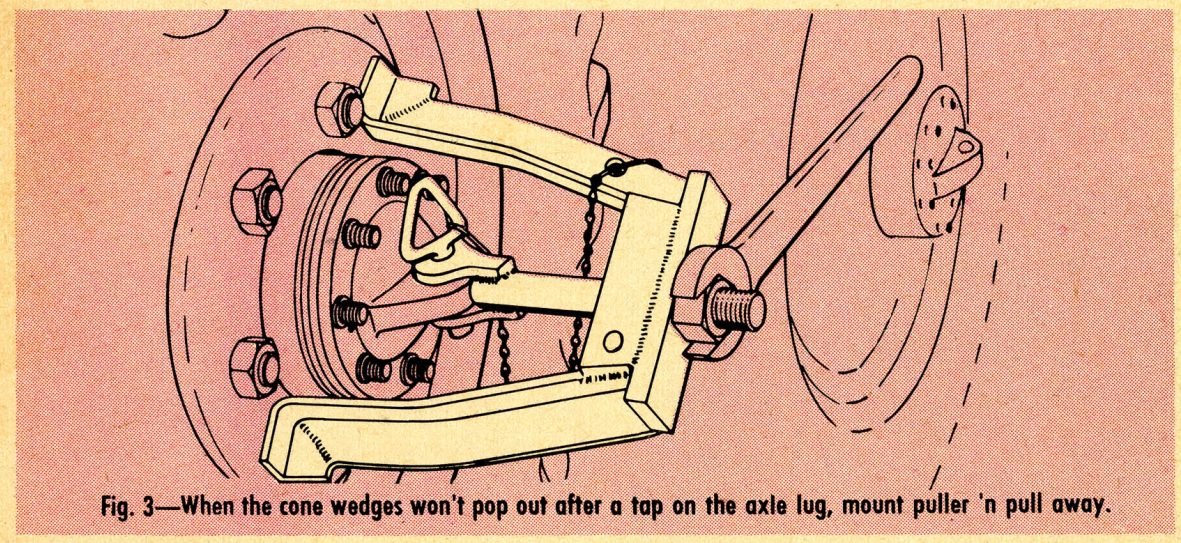


Fig. 3—When the cone wedges won't pop out after a tap on the axle lug, mount puller 'n pull away.

*(Ed Note—If you coat wedges with grease before putting them on the studs, they won't rust as much and chances are 9 out of 10 they'll pop out as they should and have no need for a puller. Another thing, after tightening those nuts [55-65 ft lbs torque], there should be approximately 1/16" clearance between the nuts and the flange. If there isn't, either the studs, dowels or holes in the flange are worn and need replacing.)*

# Connie Rodd's BRIEFS

## Clutch free - travel

Got clutch troubles on your 5-ton 6x6's? Better get the right amount of free pedal travel in your linkage. Adjust the clutch yoke like TM 9-837 (page 122) says, but **now** you're authorized **more**. Make that free travel 1¾" to 2", 'stead of 1⅜" to 1½". A TM change is in the mill.

## Need a rammer?

Any of you 8-inch howitzer crews wot's been hurtin' for that cleaning and loading rammer M7—go get it. It's listed on page 48, TM 9-3004 (June 53). You're authorized to draw it pending revision of Ord 7 SNL D29. Its stock number is 5557112. It's handy to have when you want to take a round from your weapon.

## Foul blows taboo

Watch the unintentional blows when it comes to the plastic gunner's elevating-control-handle in the M41A1 (T41E2) turret. Kneeing or body pushes will crack it up. It's hand-holds only if you want to keep this baby in the fight.

## Stuck by a point

You fellas were given the dope (PS #15) to adjust the breaker lever spring tension 17-20 ounces in both the Delco-Remy and Auto-Lite distributors. T'aint so. For the Delco-Remy it's 17-21 ounces and for the Auto-Lite, 17-20 ounces.

## A dangerous tool

Beware using old valve-stems as chisels or punches. You may get blown sky-high. Seems some from Continental and Reo engines are sodium-filled and are real dangerous when brought in contact with moisture. No cut—no saw—no bang . . . **lay off**. See TB Ord 253 for burial details.

## Hot stuff— beware

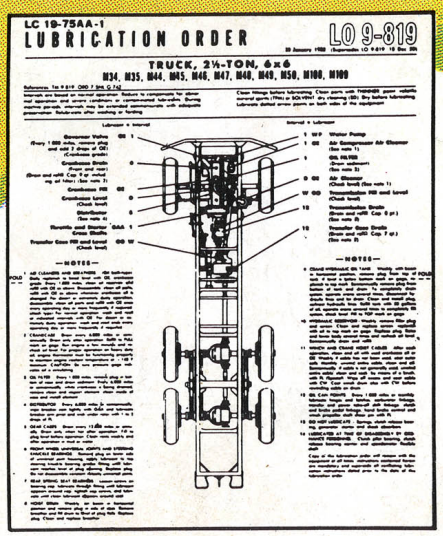
Be on the safe side and stick a little reminder on your M33's HF30G generator set. It should read: "Danger, High Voltage," and be placed on the plexiglass cover over the paralleling lead lugs at the bottom of the main control panel. Those lugs are hot stuff that shouldn't be played with.

## Turret traverse

Just want to remind y'all that the turret traverse mechanism of your M41A1 needs to be exercised at least once a week. And it must be exercised in **power** traverse. It's a sure way to keep your clutches free and healthy.

# LITTLE DROPS OF OIL

In the right place
at the right time
mean Life
for your equipment.
But — — — lack of those little drops
means Death to the toughest
equipment ever manufactured.


LC 19-75AA-1
LUBRICATION ORDER
LO 9-819
TRUCK, 2½-TON, 6×6
M34, M35, M44, M45, M46, M47, M48, M49, M50, M108, M109

**YOU NEED YOUR LUBE ORDER**

**YOUR LUBE ORDER NEEDS YOU**